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causes no urgent calls to stool	☑	☐	☐
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not habit-forming	☑	☐	☐
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does not interfere with digestive process	☑	☐	☐
does not bloat	☑	☐	☐
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in daytime antihistamine therapy

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The necessity of maintaining mental alertness under daytime antihistaminic medication should be a controlling factor in the choice of an antihistaminic agent. Sedation (the most common side effect of many antihistaminics[1,2]) can disturb concentration[1] and judgment,[4] cause failure in the operation of automobiles and other machines,[4] and lead to serious accidents.[3]

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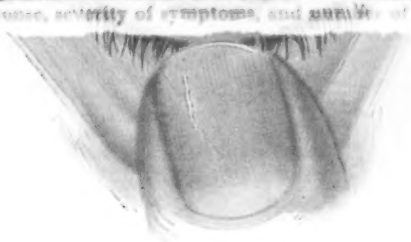

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causes no rebound constipation	☑	☐	☐
not habit-forming	☑	☐	☐
does not interfere with vitamin absorption	☑	☐	☐
does not interfere with digestive process	☑	☐	☐
does not bloat	☑	☐	☐
hypoallergenic	☑	☐	☐
easy to administer	☑	☐	☐

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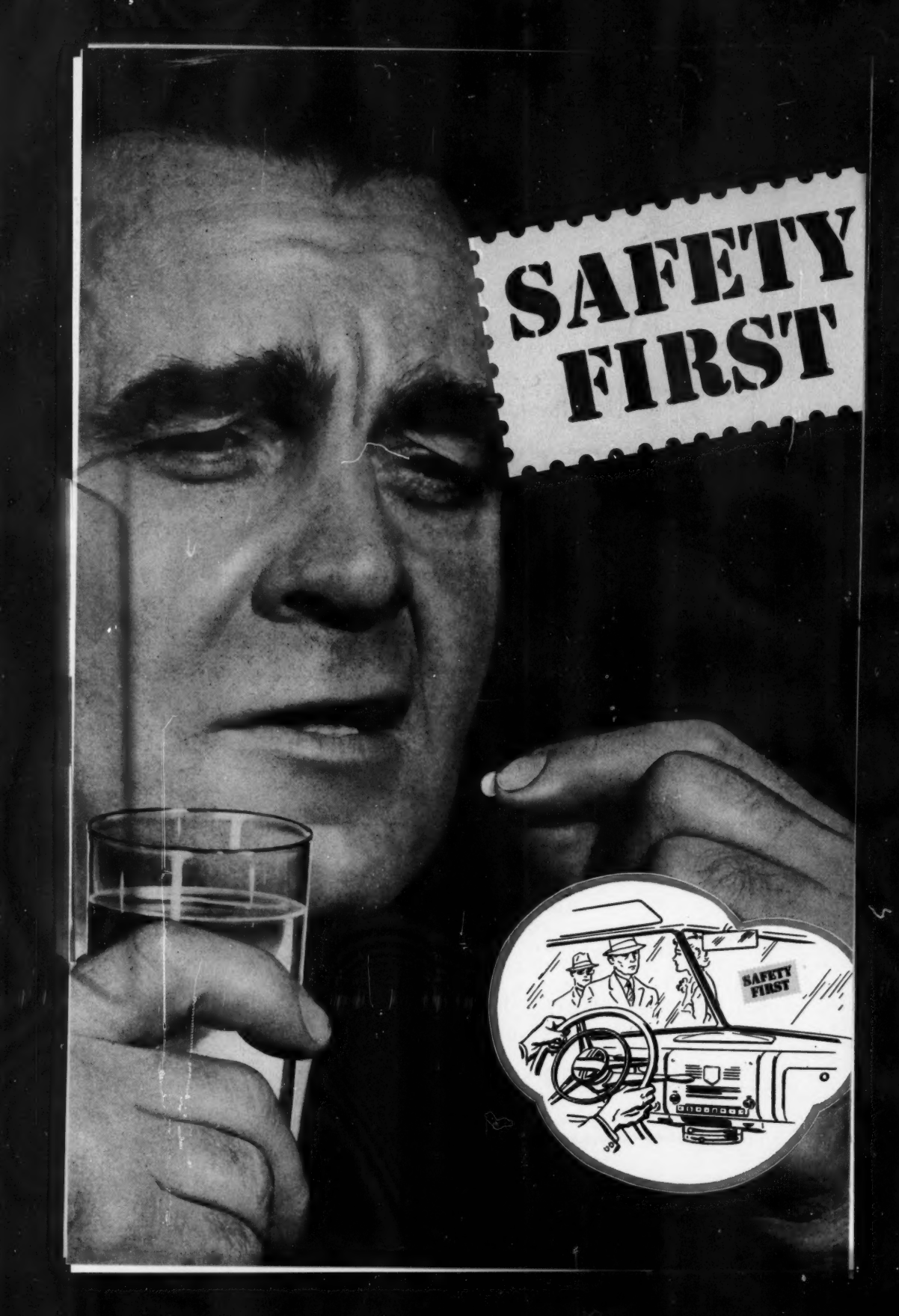
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References: 1. Feinberg, S. M.: Ann. N. Y. Acad. Sci. 50:1186 (April) 1950. 2. Landis, C. and Zubin, J.▸J. Psychology 31:181 (April) 1951. 3. Schwartz, E.: Ann. Allergy 7:770 (Nov.-Dec.) 1949. 4. Sherman, W. B.: Bull. N. Y. Acad. M. 27:309 (May) 1951.

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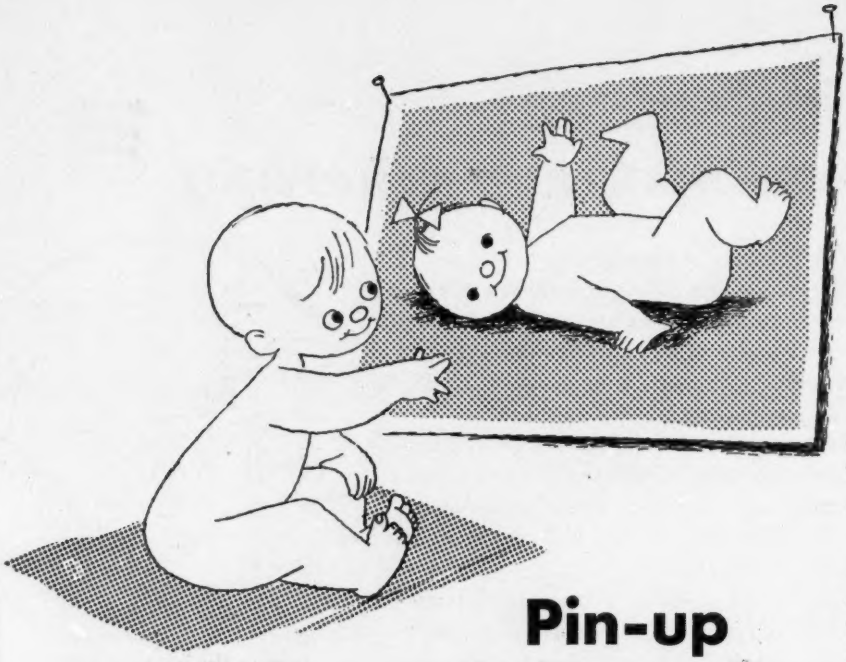

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CEREBRAL PALSY IN RELATION TO DEVELOPMENT

Presidential Address

BRONSON CROTHERS, M.D.
BOSTON

THE DELIVERY of a presidential address is an opportunity that is correctly regarded with respect. The speaker is completely free from the discussers who can harass the other and more important contributors to the program. Better still, it is a matter of common knowledge that no one has ever referred to any presidential address in any subsequent paper or article. With complete lack of responsibility, therefore, it is possible to discuss an almost insoluble problem.

I agree with all members of this society that pediatricians have validated their claim to the most attractive area of medicine. They take care of growing individuals who almost always become bigger and often wiser than they were when the pediatrician took over from the obstetrician. Under ordinary circumstances nature is on the side of the pediatrician, and like the obstetrician he reaps a rich reward because he is almost always dealing with a bull market.

If we are reasonably candid I think pediatricians would have to admit that they accept the general thesis that all children who are not ill are identical with all equally healthy children of the same age and sex. This acceptance is highly laudable and, indeed, essential. The medical schools cannot be lured into accepting students who do not show evidence of respect for uniformity in chemical solutions and in laboratory animals. In medical schools students not only are taught that human beings are uniform but are likely to think that the differences between the embryonic pig and the human fetus are almost negligible. One of the real landmarks in the development of the medical student is the day he is really convinced that the human animal is different from the laboratory animal. No wonder he gets confused at distortions of development. The institutes for the study of child development are not very different. The orderly progress of psychological advance and the predictable accretions of growth are charted out with great meticulousness. Of course, everyone recognizes that considerable individual differences exist, but the effort to standardize and predict is evident and necessary.

Doctors and psychologists are followed by teachers, or maybe the other way around. Teachers of the much abused "conventional" type accept perfectly cheerfully the idea of identity. The "progressive" ones protest vigorously, and most of them simply set up different standards of identity and go on their contentious way. Again, I see no other possible way of dealing with groups of children in a school situation.

Read at the Sixty-First Annual Meeting of the American Pediatric Society, Atlantic City, N. J., May 3, 1951.

Perhaps psychiatrists have developed a method of dealing with young children without resort to the idea that they are both identical and predictable. I have no experience that justifies too much confidence that they are different from the rest of us. Obviously they introduce a lot of variables, and they are dealing with disturbed children, but I have never been too sure that they do not stay on the side of the pediatricians, the teachers, and the psychologists and search for standards of identity and methods of prediction.

Of course, the child who is not handicapped is saved from skilled advisors by parents who ignore advice and by the extremely resourceful enterprises of his contemporaries. The ordinary child survives and competes and passes from pediatric supervision at 12.

What happens is that we try desperately to find methods of study which will produce standards of development and indicate deviations, while a lot of other people are doing their best to confuse us and the child by trying to bring him up. This difference between growing up and being brought up is very relevant to this discussion.

When permanent handicaps intervene, a new and, I believe, a very confusing series of events occur. Growth and development have to be considered in the presence of deficits. The advisors who still cling to the idea of identity bring out new standards for blind children, for deaf children, and so on. This works out all right if the handicaps are easily identifiable, but disease or injury or developmental defects are not always identifiable in detail, nor are they always isolated.

These considerations seem to me highly relevant because I have been persistently interested in a group of children and adults who have developed so atypically that identity has little meaning and the basis for prediction hardly exists. These children have cerebral palsy owing to some lesion of the brain during the period of rapid growth. By definition, they do not have active disease.

All attempts to help these children involve two shifts of emphasis that are difficult for a pediatrician to make. First, he must study distortion of development, and, second, he must make such prediction as he can for adult life. He cannot comfort himself by the pleasant feeling that adolescence will solve problems, or at least allow transfer to the internist, because the success of his supervision can be judged only by success at an adult level.

It is easy enough to devise methods by which increasing knowledge of the cause of cerebral palsy can be gained. It is possible to manage the training of muscles. With some success we can facilitate the life of these children as children; obviously this is not enough. What we need is an understanding of the deviations from the usual anatomical, physiological, and psychological status. We then have to recognize that we must attempt to plot prognosis on an ascending scale and predict the degree of competitive ability. Like all other people, we hope by these methods to get a basis for classification and prediction, but for the time being we are forced to do without. Such an enterprise is decidedly perilous. I have always been amused at the idea that an effort of this sort is praised by calling it pioneering. So far as I know, pioneers rarely know what they are looking for, often get lost, and frequently fail to return. Therefore, my hope is that investigators of this problem can set up a few charts, establish a base, and not get lost.

The first step, of course, is to recognize that the specific problem of cerebral palsy cannot be set in terms of a single agent acting on an intact and uniform child. Many of the factors operate before or during birth or in very early childhood, and these factors are so diverse that uniformity is almost absent.

The problem must be considered entirely in terms of distortion of development. Physiology and psychology are the obvious bases. Since the only point of this argument is to explore the possibility of making predictions in a field in which ordinary methods are not relevant, it is permissible to suggest the points of view that have interested me. The first consideration, of course, is that of our central figure, the child.

Obviously it is reasonable to think of the child as existing, in a very real way, in the genes as far back as we choose. Practically, it is too difficult to do this, but the events from conception on are demonstrable within the pediatric field.

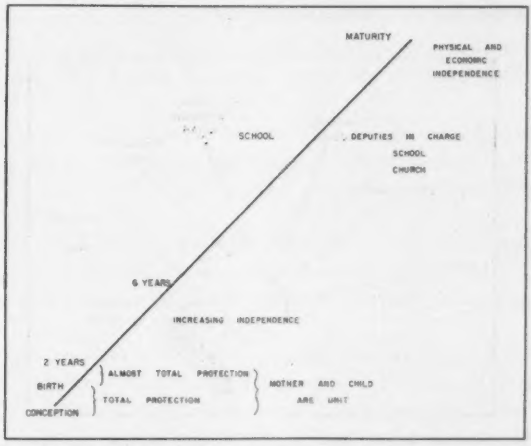

Chart 1.—Relationships and development of independence.

The period of pregancy is one in which physiological facts simplify things. The child is entirely dependent, and the mother is inevitably entirely protective. The mother-child relationship is one way of talking about pregnancy, but the mother-child unit is equally valid.

During this period tremendous development and vast growth occur, and the physical mother-child unit is broken up at birth. It then begins to be customary for people to talk about mother-child relationships. Certainly, however, the emotional unit of mother and child is kept for a considerable period. For the purposes of this discussion, I would be ready to maintain that many of the emotional difficulties of handicapped children arise from the fact that the mother-child unit, which is obligatory in pregnancy and desirable in infancy, cannot be abandoned at the usual time. The distortion of timing is difficult on both sides.

I know from experience how psychologists dislike straight lines in diagrams and how neurologists and physiologists distrust oversimplification, but these ideas can be

discussed in relation to neurological disease more readily with unsatisfactory diagrams than without any, and I cannot discuss them at all on the basis of accurate diagrams that include all the accumulated neurological knowledge, since there are none.

Chart 2 is a working diagram of the neurological factors that control activity and set the patterns of behavior.

For convenience, activity is symbolized by a striated muscle fiber. The conventional "upper motor neurones" are obvious enough. Everyone agrees, I suppose, that intelligence, mental power, or whatever we wish to call it is involved in control of activity. The transient influence of the controlling adults is more arguable. There is, I think, plenty of evidence that an unhandicapped child has relatively little use for adults in purely motor development, but certainly no one questions that some patterns of physical activity are modified. The point I wish to make is that for a considerable period adult intervention or control, or attempts thereat, have an influence on physical and mental development.

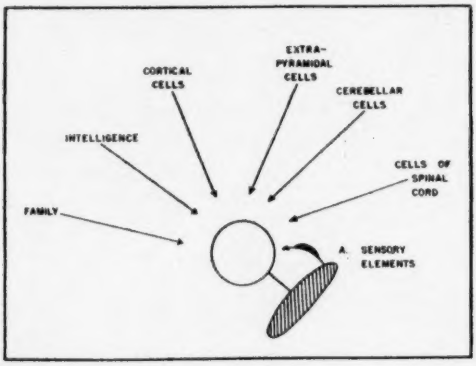

Chart 2.—Neurological factors that control activity and set the patterns of behavior; *A.* indicates afferent.

With a diagram of this sort we can deal with the appraisal of a child in terms that lead to understanding of many of the emotional and educational difficulties which occur in handicapped children. Medical nomenclature is of course dominated by deficits and disorders. This is essential and proper in acute and active disease. When the acute process is no longer operative, it becomes less useful. What parents and teachers need is information as to assets. Some such method allows us to think in terms of valid remainders as well as of described deficits. It can be used without confusion and with minimal reliance on unfamiliar nomenclature.

The thing, I think, that makes the neurology of childhood unique is that many of the signs and symptoms represent failure of maturity patterns rather than changes due to subtraction. For instance, the bewilderment of the neurologist accustomed to adult patients in the presence of an infant is due to his unfamiliarity with tonic neck patterns, hypertonic babies, and the like; the prolonged survival of other immature patterns into late infancy and childhood is likewise confusing, and their significance cannot be appraised without familiarity with the rapidly growing child.

No matter which method of handling the study of these children is undertaken, there is general agreement on certain broad principles of bringing up children. The utter protection of pregnancy is agreed upon. The emotional satisfactions on both sides in intimate physical contact between mother and infant during the first months is not questioned. The early and gratifying evidences of bodily independence are welcomed. There are some disagreements about the intensity and rigidity of control in the preschool years, but there is no very vigorous objection to the kind of supervision that is given in nursery schools.

The desirability of group discipline in school years is agreed upon; however, much discussion may exist on the finer points.

At the risk of being proved wrong in details, I should assume that there is general agreement that the ordinary child at about 10 yr. has worked out effective methods of rebelling and that the art of bringing up children depends on resourcefulness on the part of parents in abdicating authority. In any case the development of independence and the ability to justify it are essential elements in growing up.

At about 18 complete physical independence is assumed, and competitive adequacy follows. Finally the adequacy of the sex development and its control is expected.

Against some ascending line we have to predict a course. The disabilities and assets of the child are of course fundamental. The next thing is that the child's escape from those who are trying to protect him is almost impossible. The timing of everyone is altered.

From the point of view of the child protection is more absolute than it should be, social freedom is delayed, irregularities in mental ability make school progress difficult, and finally the normal explorations and rebellions at adolescence are more complicated.

From the point of view of the varying adults who are desperately trying to help the child, the situation is frustrating. Intense desire to make up for the disabilities leads parents to prolong the period of absolute protection and at the same time to interfere constantly by putting on pressure. The result is that the element of adult intervention is exaggerated, while the chance to grow up is almost ignored. When the full impact of medicine, education, physical therapy, speech therapy, and so on is imposed, it is not unusual to see the parents reeling a bit.

Also, parents are entitled, in ordinary circumstances, to cheerful prospect of abdication of responsibility when children are economically successful and happily married. The prolongation or possible permanence of responsibility is necessarily disappointing, and the child is conscious of this.

It is interesting to watch the varying ways in which the children with cerebral palsy are handled. The first step may be to decide how many people might be able to contribute. Obviously a pediatrician, certainly an orthopedist, surely a psychologist, often an oculist or an otologist, they all tend to see the value of a series of people, physical therapists, speech therapists, nursery school teachers, and the rest.

Another man may feel that the orthopedist alone, or with a brace maker and physical therapist, does an adequate job.

Then someone may decide that the physical means of treatment is so important that prolonged treatment away from home is advisable.

These same questions arise with the blind or the deaf. However, the problems there are very different. We know that many blind and many deaf men and women are leading active, competitive lives, and it is possible to find out which method is best.

With cerebral palsy we have no present evidence about the adult careers of any important number of people who have been carefully supervised as children.

What we need above all is a study that carries the investigation of development through into the years of maturity.

The problems of cerebral palsy will become clearer as we learn enough to organize the infinitely varied cases into groups that can be regarded as approximately uniform. Because of the nature of the case, however, most will escape classification. The present situation is fantastic and disturbing, with enormously complicated teams of people being used as teachers and protectors without any clear notion of what will happen when artificial and expensive support is withdrawn.

The problem seems to me to have been set in terms of protection in childhood when it should be approached in terms of modifications of independence in adult life.

BLOOD INCOMPATIBILITY BETWEEN MOTHER AND CHILD IN ETIOLOGY OF MENTAL DEFICIENCY

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THE PROBLEM of blood incompatibility between mother and child in the etiology of mental deficiency has been the object of several studies and of interesting speculations in recent years.

There are two distinct aspects of the problem. The first concerns the question whether mental deficiency may result from the acute brain damage (so-called kernicterus) that is observed during the course of hemolytic disease of the newborn caused by maternal isoimmunization with Rh or AB factors. That this type of mental deficiency does occur occasionally seems now well established, and its clinical and pathological aspects are fairly well known. Some 63 cases of this type from the literature and 16 original observations were recently described by Evans and Polani.[1]

The second and vaster aspect of the problem concerns the possibility that maternal isoimmunization with blood antigens occasionally produces mental deficiency in the child when no signs of hemolytic disease and/or of acute brain damage are observed during the neonatal period. This aspect of the problem is still highly controversial. It is the purpose of the present paper to contribute some data toward the solution of the problem by reporting investigations on about 500 mentally defective persons.

MATERIALS AND METHODS

The subjects for this study were 495 institutionalized patients, including 190 idiots, 207 imbeciles, and 98 morons. Chronological ages ranged from 5 to 45 yr. There were 284 males and 211 females; 470 patients were white and 25 Negroes. The sample implied some degree of selection, due to the fact that inclusion in the sample was conditioned by availability of the mother and her willingness to submit herself to a blood test. There were a larger number of idiots and a much smaller number of morons, particularly of the familial type, than in a random sample of the institutional population.

Aided by grants from the Department of Psychiatry of the University of the State of New York Medical Center at New York City College of Medicine and the Welfare League for Retarded Children, New York.

From the University of the State of New York Medical Center at New York City College of Medicine (Dr. Zwerling); Montefiore Hospital for Chronic Diseases (Dr. Gold); Letchworth Village (Dr. Jervis), and Kings County Hospital (Dr. Ginsberg).

1. Evans, P. R., and Polani, P. E.: The Neurological Sequelae of Rh Sensitization, Quart. J. Med. **19**:129, 1950.

The patients were divided into four groups according to the presumable causation of the mental defect. In the first group ("cause unknown"), consisting of 234 patients, no cause for the disease was known; 96 of these patients showed some evidence of brain damage on clinical examination and laboratory tests, while 138 showed no evidence of brain damage (the so-called undifferentiated type). In the second group ("cause known"), consisting of 131 patients, there was definite anamnestic and clinical evidence indicating that known etiological factors were responsible for mental defect; of these patients, in 31 the defect was postencephalitic, in 48 post-traumatic, in 13 due to or associated with endocrine disorders, in 17 caused by emotional or deprivation factors, and in the remainder due to well known genetic mechanisms. In the third group ("cause uncertain"), consisting of 79 patients, evidence in favor of known etiological factors was suggestive but not conclusive. Finally, 49 patients affected with mongolism were arbitrarily separated into a fourth group. Two patients who showed definite evidence of kernicterus due to Rh incompatibility were not included in any of these groups.

TABLE 1.—*Distribution of the D (Rh_o) Antigen in the Various Groups (Whites Only)*

Group	Mother	Observed	Expected	Chi-Square	p
Cause unknown	D+	186	185.64	0.0007	0.98
	D—	35	35.36	0.003	0.95
Cause known	D+	103	105.00	0.03	0.85
	D—	22	20.00	0.20	0.65
Cause uncertain	D+	67	65.52	0.03	0.85
	D—	11	12.48	0.17	0.67
Mongolism	D+	43	38.64	0.49	0.48
	D—	3	7.36	2.58	0.10

TABLE 2.—*Distribution of D + and D — Mothers of D + Children (Entire Sample)*

Group	Mother	Observed	Expected	Chi-Square	p
Cause unknown	D+	174	170.64	0.06	0.80
	D—	24	23.02	0.04	0.84
Cause known	D+	107	98.87	0.66	0.41
	D—	5	13.37	5.23	0.02
Cause uncertain	D+	59	57.55	0.03	0.85
	D—	10	7.82	0.60	0.43
Mongolism	D+	38	35.15	0.23	0.63
	D—	7	4.75	1.06	0.30

The blood of each mother-child pair was tested for A, B, C, c, D, and E antigens. Standard techniques were used as described by Wiener.[2] In addition, D antibodies were tested in all mothers. Slide and tube agglutinations between the mothers' serums and known cells were used, and any mother's serum causing agglutination when undiluted was titrated in saline and in 30% bovine albumin. Finally, saliva tests were performed in 70 patients showing A or B incompatibility, in order to study the secretor status for the A or B factor.

The data were treated statistically. Expected and observed values were compared by applying the chi-square test of goodness of fit,[3] expected values being calculated on the basis of Fisher's data as given by Mollison and co-workers.[4]

RESULTS

Table 1 shows the distribution of the D antigen in the various groups of patients. There is no significant discrepancy between expected and observed figures.

2. Wiener, A. S.: Blood Groups and Transfusions, ed. 3, Springfield, Ill., Charles C Thomas, Publisher, 1943.

3. Fisher, R. A.: Statistical Methods for Research Workers, ed. 4, London, Oliver & Boyd, Ltd., 1932.

4. Mollison, P. L.; Mourant, A. E., and Race, R. R.: The Rh Blood Groups and Their Clinical Effects, Medical Research Council Memorandum 19, London, His Majesty's Stationery Office, 1948.

Table 2 shows the distribution of the D factor in all mothers of D-positive children. It may be seen that there are no significantly increased incompatible pairs (that is, D-negative mothers of D-positive children) in the groups with cause unknown or uncertain.

In view of the fact that isoimmunization rarely occurs during the first pregnancy,[5] the data from Table 2 are presented in Table 3 after the elimination of data from all first-born children. Negro pairs are also eliminated, because of differences in incidence of D factor among Negroes. It appears that the incidence of incompatible pairs is high in the cause unknown group. The difference, however, is not statistically significant ($p = 0.17$).

TABLE 3.—*Data of Table 2 After Elimination of Data from First-Born and Negro Children*

Group	Mother	Observed	Expected	Chi-Square	p
Cause unknown	D+	100	103.98	0.15	0.69
	D—	19	13.96	1.80	0.17
Cause known	D+	54	48.33	1.93	0.16
	D—	4	6.53	0.98	0.32
Cause uncertain	D+	35	34.41	0.01	0.92
	D—	6	4.55	0.07	0.78
Mongolism	D+	34	29.28	0.76	0.38
	D—	4	3.86	0.005	0.94

TABLE 4.—*Distribution of C-Incompatible Pairs: Mother C —, Child C +*

Group	Observed	Expected	Chi-Square	p
Cause unknown	30	37.51	1.50	0.22
Cause known	15	21.73	2.08	0.15
Cause uncertain	12	12.72	0.04	0.84
Mongolism	11	7.73	1.38	0.24

TABLE 5.—*Distribution of E-Incompatible Pairs: Mother E —, Child E +*

Group	Observed	Expected	Chi-Square	p
Cause unknown	27	25.80	0.05	0.82
Cause known	12	14.94	0.57	0.45
Cause uncertain	6	7.74	0.38	0.54
Mongolism	4	5.31	0.32	0.57

In Tables 4 and 5 the distribution of incompatible mother-child pairs for the C and E factors respectively is given. There is no significant discrepancy between expected and observed values.

In Table 6 the expected and observed incidence in the patients of the main Rh genotypes are calculated. There is statistical agreement between expected and observed figures.

In relation to the A or B factors, as seen in Table 7, there is no significant abnormality in the distribution of these factors among the patients.

5. Levine, P.: Prevention of Unintentional Isoimmunization of the Rh Negative Female Population, J. A. M. A. **128**:946 (July 28) 1945.

Table 8 shows that no statistically significant increase of incompatible pairs for the A or B factor was observed in the groups with unknown or uncertain cause.

TABLE 6.—*Distribution of Main Rh Genotypes*

Group	Observed	Expected	Chi-Square	P	Observed	Expected	Chi-Square	P
	Genotype CDe/cdc				Genotype CDe/CDe			
Cause unknown	68	74.337	0.54	0.46	34	39.405	0.74	0.38
Cause known	43	42.578	0.004	0.95	25	22.570	0.26	0.61
Cause uncertain	30	27.571	0.21	0.64	14	14.615	0.02	0.88
Mongolism	16	16.408	0.009	0.92	13	8.695	2.13	0.14
	Genotype cde/cdc				Genotype cDE/cde			
Cause unknown	31	32.163	0.04	0.84	32	30.083	0.12	0.73
Cause known	14	18.422	1.06	0.30	8	17.202	4.92	0.03
Cause uncertain	9	11.929	0.71	0.40	10	11.139	0.11	0.74
Mongolism	2	7.097	3.66	0.05	6	6.627	0.05	0.82
	Genotype CDe/cDE				Genotype cDe/cdc			
Cause unknown	33	28.542	0.69	0.40	6	4.473	0.52	0.47
Cause known	17	16.348	0.02	0.88	4	2.562	0.80	0.37
Cause uncertain	9	10.586	0.23	0.63	3	1.659	1.08	0.29
Mongolism	5	6.298	0.26	0.61	1	0.987	0.0001	0.99

TABLE 7.—*Distribution of A and B Factors (Whites Only)*

	A				B				AB			
Group	Observed	Expected	Chi-Square	P	Observed	Expected	Chi-Square	P	Observed	Expected	Chi-Square	P
Cause unknown	82	90.61	0.81	0.36	28	22.10	1.52	0.21	8	8.84	0.008	0.92
Cause known	51	50.84	0.0005	0.98	19	12.40	3.51	0.11	5	4.96	0.00	1.00
Cause uncertain	28	31.57	0.43	0.50	11	7.70	1.46	0.22	4	3.08	0.27	0.60
Mongolism	20	19.27	0.02	0.88	6	4.70	0.03	0.85	4	1.88	2.39	0.12

TABLE 8.—*Distribution of A- and B-Incompatible Mother-Child Pairs (Whites Only)*

Group	Observed	Expected	Chi-Square	P	Observed	Expected	Chi-Square	P
	Mother O, Child A				Mother O, Child B			
Cause unknown	19	20.54	2.14	0.14	5	5.88	0.13	0.71
Cause known	10	15.15	1.75	0.18	5	5.78	0.10	0.74
Cause uncertain	10	9.33	0.08	0.77	0	2.07	2.07	0.15
Mongolism	3	4.68	0.60	0.43	0	1.26	1.26	0.26
	Mother B, Child A				Mother A, Child B			
Cause unknown	5	2.38	2.88	0.09	5	2.38	2.88	0.09
Cause known	1	1.36	0.09	0.76	4	1.36	5.12	0.02
Cause uncertain	3	0.84	5.55	0.01	2	0.84	1.60	0.20
Mongolism	1	0.51	0.47	0.49	2	0.51	4.35	0.03
	Mother B, Child AB				Mother A, Child AB			
Cause unknown	3	2.58	0.06	0.80	4	3.86	0.005	0.94
Cause known	1	1.47	0.15	0.69	3	1.88	0.66	0.41
Cause uncertain	1	0.91	0.009	0.92	3	1.16	2.91	0.08
Mongolism	2	0.55	3.82	0.05	1	0.71	0.11	0.73

The secretor or nonsecretor status was determined by testing the saliva of 70% of those patients with A or B incompatibilities. Results are presented in Table 9. There is no increase of nonsecretors in the group with unknown causation as compared with other groups.

Finally, in Table 10, the incidence of compatibility and incompatibility for all subjects for each antigen is summarized, using percentage values. It may be seen that there is within the sample a greater incidence of D-incompatible pairs observed in the cause unknown group as compared with the cause known group.

COMMENT

It is clear from the data presented that in the sample examined there is no statistical justification in assuming that incompatibility of the D factor is responsible for the mental defect in a significant number of patients classified in the cause unknown or cause uncertain groups. If this were the case, one should observe in Table 1 a higher incidence of D-positive children and in Tables 2 and 3 a higher incidence of D-negative mother-D-positive child pairs in these diagnostic groups than theoretically expected.

TABLE 9.—*Distribution of Secretors and Nonsecretors in the A or B-Incompatible Children*

Group	Secretors	Nonsecretors	Total
Cause unknown	24	6	30
Cause known	12	6	18
Cause uncertain	13	1	14
Mongolism	4	4	8
Total	53	17	70

TABLE 10.—*Incidence of Compatibility and Incompatibility for Each Antigen for All Subjects*

		Antigen															
		A			B			C			D			E			c		
Group	Total	C*	I†	%I	C	I	%I	C	I	%I	C	I	%I	C	I	%I	C	I	%I
Cause unknown	234	204	30	12.8	220	14	6.0	197	37	15.8	208	26	11.1	205	29	12.4	209	25	10.7
Cause known	131	116	15	11.4	121	10	7.6	116	15	11.4	127	4	3.1	118	13	9.9	116	15	11.4
Cause uncertain	79	65	14	18.2	74	5	6.5	65	14	18.2	69	10	13.0	72	7	9.1	72	7	9.1
Mongolism	49	42	7	14.3	46	3	6.1	37	12	24.5	42	7	14.3	46	3	6.1	45	4	8.2
Total	493	427	66	13.4	461	32	6.5	415	78	15.8	446	47	9.5	441	52	10.5	442	51	10.3
(Kernicterus)	(2)																		

* C indicates compatible, that is, mother and child both positive or both negative for the antigen, or mother positive and child negative for the antigen.
† I indicates incompatible, that is, mother negative and child positive for the antigen.

The hypothesis that maternal isoimmunization with the D antigen may produce mental deficiency in the child when no evidence of hemolytic disease or brain damage is observed during the neonatal period was first advanced by Yannet and Lieberman.[6] They found a statistically significant increase in the incidence of incompatible pairs in a group of 119 patients with mental deficiency of unknown cause as compared with a control group of 158 with deficiency of known cause. Snyder and associates[7] confirmed these findings on the basis of the examination of 169 pairs. The data here presented fail to confirm these positive statistical results and are in agreement with the negative findings of Böök and co-workers,[8] who

6. Yannet, H., and Lieberman, R.: The Rh Factor in the Etiology of Mental Deficiency, Am. J. Ment. Deficiency **49**:133, 1944.

7. Snyder, L. H.; Schonfeld, M. D., and Offerman, E.: The Rh Factor and Feebleminded-ness: Studies in Human Inheritance, J. Hered. **36**:9, 1945.

8. Böök, J.; Grubb, R.; Engleson, G., and Larson, C. A.: Rh-Incompatibility and Mental Deficiency, Am. J. Human Genetics **1**:66, 1949.

studied 977 mentally defective patients in Sweden, and of Gilmour,[9] whose results are based on the examination of 427 defectives in England. Cappell[10] obtained similar negative results, although no detailed data are given.

One may conclude, therefore, from an examination of over 2,000 defective persons, that there is no statistical justification in assuming that maternal isoimmunization with the D factor plays a significant role in the etiology of mental deficiency in the absence of hemolytic disease of the newborn.

The role of the C and E factors in mental deficiency has not been investigated previously, but from the limited data here presented (Tables 4, 5, 6), it would appear that maternal isoimmunization with these antigens is without statistical significance in the causation of mental deficiency.

With regard to the A and B factors, the claim of Yannet and Lieberman[11] that incompatibility with these factors may be responsible for a certain number of defective children is not confirmed statistically by the present data (Table 8). Yannet and Lieberman[11] further reported that A and B antigens are absent from the saliva of a greater number of defectives with unknown causation and with A or B incompatibility with the blood of the mothers than among similarly incompatible defectives with known causation. In the present material, as seen in Table 9, no increase in nonsecretors was found in the cause unknown group. However, no examinations of gastric juice were performed, as recommended by the authors.

Although statistical significance was not obtained, a closer examination of Tables 3 and 10 suggests the possible relevance of the D factor to the etiology of mental deficiency in a very few instances. In fact, in Table 3 a high incidence, approaching statistical significance, of incompatible pairs may be seen in the cause unknown group, and in Table 10 this greater incidence as compared with the cause known group within the sample is even more apparent.

As a further test, the anti-D antibodies in the blood of each D-negative mother with a D-positive defective child were titrated. The finding of a positive titer would suggest the possible role of maternal isoimmunization in causing the defect in the child. The mothers of three defective children were found to have positive titers.

The first patient was an imbecile boy, 11 yr., I. Q. 29, second in line of birth. He was underweight at birth and a difficult feeding problem in infancy. He had slight jaundice for a few days following birth, but no clinically demonstrable anemia. At 1 yr., mental defect was apparent. At 8 mo., a generalized convulsive attack was noted, and convulsions recurred at varying intervals for two years. Physical and neurological examinations were negative upon admission to the institution.

The second patient was an idiot, 25, the fourth of eight pregnancies. The first, the third, and the eighth child were physically and mentally normal. The other children were stillborn. There was nothing of significance in the neonatal or infantile history, neither jaundice nor anemia being clinically apparent. However, the child was very "nervous" until 1 yr., and a diagnosis of "internal spasms" was made by the family physician. Mental defect was apparent at an early age. Physical examination was negative.

The third patient was an imbecile girl, 19, first in line of birth. Two normal children and a spontaneous abortion followed. There was a history of birth trauma with apparent damage to the head. Clinical examination showed right spastic hemiparesis of cerebral origin, with a right

9. Gilmour, D.: The Rh Factor: Its Role in Human Disease, with Particular Reference to Mental Deficiency, J. Ment. Sc. **96**:359, 1950.

10. Cappell, D. F.: The Mother-Child Incompatibility Problem in Relation to the Nervous Sequelae of Haemolytic Disease of the Newborn, Brain **70**:486, 1947.

11. Yannet, H., and Lieberman, R.: A and B Iso-Immunization as a Possible Factor in the Etiology of Mental Deficiency (Preliminary Report), Am. J. Ment. Deficiency **50**:242, 1945.

Babinski response and increased deep reflexes on the right. There was, in addition, marked strabismus, and stammering indistinct speech. The skull was asymmetric. It is doubtful that mental deficiency in this case was related to maternal isoimmunization. The patient was first-born. The father was heterozygous, one of the other children being D negative. Both history and clinical picture indicate a traumatic cause. One may speculate that the presence of anti-D antibodies in the mother was caused by the successive pregnancies, the last of which terminated prematurely.

The presence in the sample of the first two cases adds additional evidence to the suggestion that in a small number of defective children, too small to be statistically demonstrable in this study, D incompatibility between mother and child may be the cause of the mental defect, even when evidence of hemolytic disease in the neonatal period is lacking.

Finally, it is of interest to note that, as seen in Table 10, there is within the present sample a greater incidence of D-negative mother, D-positive child pairs in the mongolism than in the cause known group. Yannet [12] obtained similar results: of 47 children with mongolism, seven were D positive with D-negative mothers. These figures, however, are not statistically significant. Whether these findings represent chance phenomena cannot be stated. It is interesting to note that recently Penrose [13] called attention to the fact that in mongolism, antigens "could be supposed to interfere with normal implantation and development of the fetus at an early stage if the mother's tissues responded to these antigens." The reaction may become more intense with the advanced age of the mother and following repeated incompatible pregnancies, a fact which would explain the well known tendency of mongolism to occur in children of aged, multiparous mothers.

SUMMARY

Blood determinations for the A, B, C, c, D, and E antigens were performed in 495 mentally defective patients and their respective mothers. The patients were classified into four groups according to the causation of their condition, namely, "cause unknown," "cause known," "cause uncertain," and mongolism. Two patients who had shown evidence of erythroblastosis fetalis and kernicterus in the neonatal period were not included in these groups.

The distribution of the antigens among the various groups was found to correspond within chance limits to theoretical expectation.

For the D antigen, however, in the cause unknown group, an increase which approaches statistical significance was observed. In addition, an increase of D incompatibility was found in the cause unknown group as compared with the cause known group within the present sample.

These results suggest that maternal isoimmunization with A, B, C, and E factors, in the absence of hemolytic disease of the newborn, play no significant role in the etiology of mental deficiency. The data suggest, but do not establish statistically, that isoimmunization with the D antigen may be responsible for a very small number of cases of mental deficiency, even when evidence of hemolytic disease is lacking. Two cases in which this mechanism is believed to be responsible for the existence of mental deficiency are briefly reported.

12. Yannet, H.: Personal communication to the authors.

13. Penrose, L. S.: On the Familial Appearances of Maternal and Foetal Incompatibility. Ann. Eugenics **13**:141, 1946.

EFFECTS OF STREPTOMYCIN UPON THE HUMAN FETUS

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ON SEVERAL occasions we have encountered a pregnant woman for whom the administration of streptomycin was deemed necessary for treatment of tuberculosis. Molitor and co-workers [1] have reported that weanling rats given repeated doses of streptomycin showed a retardation of growth and pronounced nervous hyperexcitability. No such changes were noted in adult rats. These observations suggest that the immature organism may be more susceptible to the neurotoxic effects of streptomycin than the adult. Since streptomycin crosses the placenta,[2] the possibility of fetal damage from prolonged administration of the drug required consideration. In the two clinical reports [3] that have appeared, a total of seven infants whose mothers received streptomycin during pregnancy were studied. The infants were followed for two to 11 mo. after birth. All were said to be normal. However, apparently not all the infants had their vestibular function tested. Presented here are three additional cases in which the maternal indication for the use of streptomycin was considered sufficient to risk the theoretical chance of injury to the fetus. The infants have all had general medical and neurologic follow-up (including vestibular function tests with the Barany turning technique [4]) for 16 to 19 mo. following birth.

From the Department of Obstetrics and Gynecology, the Section of Neuro-Otology of the Department of Otolaryngology, and the Department of Pediatrics of the Hospital of the University of Pennsylvania.

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4. Rubin, A.; Winston, J.; Metz-Rubin, H., and Berwick, L.: The Vestibular Responses to Turning, with Nomograms for the Detection of Streptomycin and Other Drug Toxicities, and for the Prediction of the Normal Variations of Post-Rotational Nystagmus and Vertigo, Ann. Otol. Rhin. & Laryng. **60**:108 (March) 1951.

REPORT OF CASES

CASE 1.—A trigravid, 27-yr.-old Negro woman had had two previous normal full term deliveries. When first seen in prenatal clinic, on Feb. 11, 1949, she was 24 weeks pregnant. The chest roentgenogram at that time revealed patchy consolidation (probably tuberculous) of the right upper lobe. One month later blurring of vision of her left eye developed. She was examined by an ophthalmologic consultant, who made a diagnosis of choroidal tuberculosis. (This diagnosis was confirmed when removal of the eye became necessary during the postpartum period.) In the thirtieth week of gestation, administration of streptomycin, 0.5 gm. intramuscularly twice daily, was begun, and administration was continued for seven days. Thereafter, the patient received 0.5 gm. intramuscularly daily until delivery. The vestibular function, as evaluated by the turning and caloric tests,[5] remained normal throughout this period of therapy. On April 30, in her thirty-fifth week of pregnancy, the membranes ruptured spontaneously and she fell into premature labor. She was delivered four hours later of a living, premature, 2,295 gm. (5 lb. 1 oz.) girl. The infant's crown-heel length was 47 cm., its occipitofrontal head diameter 10 cm. The infant and the placenta (370 gm.) appeared normal. No cause for the premature rupture of the membranes could be found. The infant had an uneventful course in the nursery. When discharged from the hospital at the age of 8 weeks, she weighed 4,090 gm. Thereafter, she was seen at one to two-month intervals in the pediatric clinic. On each occasion she was healthy, with normal neurologic findings and normal vestibular responses to turning. When last seen, the baby was 19 mo. old and weighed 25 lb. 4 oz. (11,400 gm.).

CASE 2.—A bigravid, nulliparous, 24-yr.-old Negro woman had had a right nephrectomy for renal tuberculosis three years before she was seen by us. Subsequently severe dysuria and frequency developed. A month prior to her registration in prenatal clinic, lupus (proved microscopically) of the face had also developed. She was 13 weeks pregnant at registration. Because of her incapacitating bladder symptoms, streptomycin therapy was inaugurated at the eighteenth week of gestation, in doses of 0.5 gm. intramuscularly twice daily, and was continued for 40 days. The vestibular function remained normal. The bladder symptoms diminished. Her pregnancy continued uneventfully to the thirty-ninth week, when she fell into spontaneous labor. Fifteen hours later, on Aug. 29, 1949, she was delivered of a living, 3,090 gm. (6 lb. 13 oz.), healthy boy. The baby's crown-heel length was 50 cm., its occipitofrontal head diameter 11.5 cm. The placenta (640 gm.) revealed no gross or microscopic abnormalities. The infant was followed at frequent intervals in the pediatric clinic and at all times was found to be healthy, exhibiting no abnormal neurologic signs or abnormal vestibular responses to turning. When last seen, the child was 16 mo. old and weighed 26 lb. 2 oz. (11,800 gm.).

CASE 3.—A 26-yr.-old Negro woman was first seen in the prenatal clinic on May 2, 1949, at the twenty-third week of her second pregnancy. She had extensive, destructive tuberculous lesions of her nose and larynx. Administration of 1 gm. of streptomycin intramuscularly daily was started in her thirty-second week of pregnancy. The patient's vestibular responses remained normal throughout this treatment. In her thirty-fifth week of pregnancy, after 23 days of streptomycin therapy, spontaneous labor began. Seven hours later, on July 31, she was delivered spontaneously of a living, premature girl weighing 2,310 gm. (5 lb. 1½ oz.). The baby's crown-heel length was 45 cm. The infant and the placenta (400 gm.) were both grossly normal. No obvious cause for the premature labor could be determined. Maternal venous and infant cord blood specimens were obtained at the time of delivery and assayed for streptomycin. The levels three hours after the mother had received 1 gm. of streptomycin intramuscularly were maternal, 16.1 γ per milliliter; fetal, 8.9 γ per milliliter. After 16 days in the nursery, the infant was discharged in good condition, weighing 2,500 gm. She was seen periodically in the pediatric clinic, and on all occasions physical, neurologic, and Barany turning examinations were found to give normal results. When last seen, she was a healthy 21-lb. 2-oz. (9,600 gm.) 16-mo.-old infant.

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SUMMARY

Three women with active tuberculosis received streptomycin therapy during mid and late pregnancy, despite the theoretical danger of damage to the fetus from the neurotoxic action of this drug.

Prior to the birth of each infant, the mothers received streptomycin for periods ranging from 23 to 40 days and in doses totaling 23 to 40 gm.

Careful neurologic examinations (including tests of vestibular function with the Barany technique) repeated upon the infants at frequent intervals up to 1½ years following delivery revealed no evidence of damage from the drug. Although two of the infants were born prematurely (cause unknown), their general development is normal to date.

While this limited experience fails to prove that the fetus is safe from the possible neurotoxic effect of streptomycin when the mother receives the drug, it suggests that such is the case.

AQUEOUS DISPERSIONS OF VITAMINS A AND D IN PREMATURE INFANTS

Studies with Reference to Rickets and Retrolental Fibroplasia

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THE PURPOSE of this investigation was to evaluate the results obtained in the management of premature infants who received vitamin A and D supplements in aqueous dispersions, as compared with the results obtained in premature infants who received vitamin A and D supplements in oily solution. Special attention was paid to rickets and retrolental fibroplasia.

Diminished intestinal absorption of fat-soluble vitamin A in the premature and newborn infant has been established.[1] This may explain why Shelling and Hopper[2] found that higher doses of synthetic oleovitamin D (viosterol) are needed for the prevention of rickets in the premature infant than in the older child. In 1946 a paper from this laboratory reported that vitamin A is more readily absorbed from an aqueous than from an oily medium.[3] This observation has since been amply confirmed.[4] It is of special significance in the management of the premature, since

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From the Departments of Pediatrics and Biochemistry, The Jewish Hospital of Brooklyn.

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(Footnote continued on next page)

premature and newborn infants have diminished intestinal absorption of vitamin A in oil [1] compared with children above 1 yr. of age. Such evidence is not available for the absorption of vitamin D from aqueous dispersions, because of the inherent difficulties in the determination of vitamin D.

The question arises: Does vitamin D given in aqueous dispersion prevent rickets? This is of prime importance in the management of premature infants, who are prone to acquire the disease. Circumstantial evidence in one premature infant indicated that the aqueous vitamin D preparation was better absorbed. In 1946 a premature infant with no apparent signs of clinical rickets and receiving an oily preparation of vitamin D showed severe rickets on roentgenologic examination. Administration of 173,000 units of vitamin D in oil for the first 73 days of life elicited no response. Beginning on the 74th day, 2,400 units of an aqueous dispersion of vitamin D, supplemented by other vitamins (previously referred to as aqueous dispersion I,[5] was given daily. Signs of healing became evident in 10 days. This dramatic experience led us to institute the use of an aqueous dispersion of vitamin D (and A) in the routine management of our premature infants. Because this single case could not be taken as proof that vitamin D in aqueous dispersion prevents rickets, a more comprehensive study was undertaken.

The administration of aqueous vitamin A along with vitamin D (contained in the multivitamin preparation [5d]) is of interest in connection with retrolental fibroplasia. This disease is limited to the premature and does not become evident until one to five months after birth,[6] although Owens and Owens [7] state that they can recognize the early signs of the condition 15 days after birth. Vitamin A prevents

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in Normal Children and in Children with Steatorrhea, J. Clin. Invest. **27**:226 (March) 1948. (*f*) Popper, H.; Steigmann, F., and Dyniewicz, H. A.: Influence of Anti-Oxidative and Dispersing Agents on Vitamin A Absorption: Therapeutic Implications in Endogenous Hypovitaminemia A, Gastroenterology **10**:987 (June) 1948. (*g*) Popper, H.; Steigman, F.; Rubin, A.; Dyniewicz, H. A., and Hesser, F. P.: Significance of Vitamin A Alcohol and Ester Partitioning Under Normal and Pathologic Circumstances, Proc. Soc. Exper. Biol. & Med. **68**:676 (July-Aug.) 1948. (*h*) Davidson, M. D., and Sobel, A. E.: Aqueous Vitamin A in Acne Vulgaris, J. Invest. Dermat. **12**:221 (April) 1949. (*i*) Sobel, A. E., and Rosenberg, A. A.: Vitamin A Stores of Sucklings Following Administration to the Dams of Vitamin A in Oily and Aqueous Media, J. Nutrition **42**:557 (Dec.) 1950. (*j*) Sobel, A. E.; Rosenberg, A. A., and Kramer, B.: Enrichment of Milk Vitamin A in Normal Lactating Women: A Comparison Following Administration of Vitamin A in Aqueous and Oily Mediums, Am. J. Dis. Child. **80**:932 (Dec.) 1950. (*k*) Popper, H., and Volk, B. W.: Intestinal Absorption of Vitamin A from Aqueous and Oily Menstruum, Proc. Soc. Exper. Biol. & Med. **68**:562 (July-Aug.) 1948.

5. (*a*) Footnote 1*b* and *c*. (*b*) Sobel and others.[3] (*c*) Footnote 4*b*, *d*, *h* and *i*. (*d*) The preparation is called vifort.® The source of vitamin A is the nonsaponified fraction of fish liver oil. Each 0.6 cc. contained 5,000 U. S. P. units of vitamin A, 1,200 U. S. P. units of vitamin D (irradiated ergosterol), 60 mg. of vitamin C, 1.8 mg. of vitamin B_1, 0.4 mg. of riboflavin, 6.0 mg. of nicotinamide, 0.3 mg. of pyridoxine hydrochloride, 1.2 mg. of pantothenic acid, and 16% polyoxyethylene fatty-acid derivative, which is the dispersing agent. (*e*) Oil I was oleum percomorphum (percomorph liver oil), each gram containing 60,000 U. S. P. units of vitamin A in the form of esters and 10,000 U. S. P. units of vitamin D.

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a disease resembling retrolental fibroplasia in many respects. This disease is found in the offspring of pigs [8] and rats [9] when the maternal diet is deficient in vitamin A. The possibility was considered that vitamin A given to the premature in adequate amounts may prevent retrolental fibroplasia,[6b] in which case the more readily absorbed aqueous dispersion should be more effective. Kinsey and Zacharias,[6b] however, stated that water-miscible vitamin A does not prevent retrolental fibroplasia, but that it may be a factor in the increased incidence of this disease. Because our premature infants received aqueous supplements of vitamin A [5] from September, 1946, we undertook to determine the incidence of retrolental fibroplasia with administration of aqueous and oily preparations of vitamin A. The incidence of the disease during the three-year period from 1946 to 1949 with the use of aqueous dispersions of vitamin A was compared with that during the three-year period from 1943 to 1946, when an oily solution of vitamin A was given. The diets were otherwise similar.

EVALUATION OF VITAMIN D

Method.—Premature children weighing less than 4 lb. (1,814 gm.) were selected for this study. Beginning on the seventh postnatal day, the appropriate vitamin supplement was introduced directly into the mouth of the infant by a nurse under the supervision of one of us. This was done to assure us that the child actually received the entire dose. The daily dosage was 1,200 units of vitamin D and 5,000 units of vitamin A in the aqueous form [5d] or 1,260 units of vitamin D and 8,750 units of vitamin A in the oily solution.[5e]

The total number who received aqueous dispersions was 35, and the number who received the oil was 30. The average stay in the hospital of the group receiving vitamin supplements in oil was 39.6 days. The average for the group given the aqueous preparation was 34.8 days. All the children gained weight while receiving the supplements. The average weight gain for the group given the oily solution was 2 lb. 5 oz. (1,059 gm.); the average gain per day was 0.88 oz. (25.1 gm.). The average weight gain in the group receiving the aqueous preparation was 2 lb. 5 oz.; the average gain per day was 0.99 oz. (28.2 gm.).

On the day of discharge the long bones and wrists were examined by roentgenogram for signs of rickets, and a blood specimen was taken for serum calcium, inorganic-phosphorus, and phosphatase estimation.

Serum calcium was determined acidimetrically on 0.1 ml. of serum,[10] serum inorganic phosphate was determined on 0.2 ml. of serum colorimetrically,[11] serum phosphatase was determined on 0.1 ml. of serum by a modification of Bodansky's [12] procedure, in which all reagents were reduced to one-tenth the recommended amount and the final color developed as in the inorganic-phosphorus determination.[11] All determinations were carried out in duplicate. A determination was considered valid if the following criteria were fulfilled:

1. Duplicate determinations on known calcium solution were between 9.8 and 10.2 mg. per hundred milliliters for 10 mg. per hundred milliliters.

2. Duplicate determinations on a known inorganic-phosphorus solution were between 3.9 and 4.1 mg. per hundred milliliters for 4 mg. Recoveries of known amounts of inorganic phosphate added to serum were between 3.8 and 4.2 mg. per hundred milliliters for 4 mg. per hundred milliliters added.

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3. The pH of the serum mixed with the substrate in the phosphatase estimation was between 8.7 and 8.8, and the substrate contained no measurable amounts (or faint traces) of inorganic phosphate.

Results.—None of the children showed evidences of rickets on clinical and roentgenologic examinations.

The results of the chemical studies are shown in Tables 1 and 2. With but one exception, all the low serum calcium values and both of the high serum inorganic-phosphorus values were in the group given the oily preparation. The mean values for

TABLE 1.—*Comparison of Serum Calcium, Inorganic Phosphorus, and Alkaline Phosphatase of Premature Infants Receiving Vitamin D in Oil I*

Case No.	Ca, Mg./100 Ml.	P, Mg./100 Ml.	Ca × P	Alkaline Phosphatase, Units
1	4.7	6.7	31.5	5.1
2	5.3	7.6	40.2	10.5
3	6.8	10.3	70.0	10.6
4	8.0	7.9	63.2	9.1
5	8.5	5.5	46.7	13.0
6	8.6	5.8	49.9	19.4
7	8.6	7.1	61.2	4.9
8	8.6	7.1	61.2	13.7
9	8.7	7.1	61.8	9.5
10	8.7	7.1	61.8	9.5
11	8.7	7.1	61.8	9.5
12	8.9	7.1	63.1	9.5
13	8.9	6.4	57.0	13.8
14	9.0	10.0	90.0	11.2
15	9.0	6.9	62.1	9.1
16	9.2	7.6	70.6	15.0
17	9.2	8.1	74.4	11.0
18	9.3	4.4	40.2	9.9
19	9.3	4.4	40.2	9.9
20	9.8	7.0	68.6	6.8
21	10.0	7.6	76.0	5.5
22	10.3	6.7	69.0	5.3
23	10.3	6.7	69.0	5.1
24	10.3	6.7	69.0	5.5
25	10.3	7.5	77.4	5.8
26	10.5	7.0	73.5	3.7
27	10.5	7.6	79.6	10.5
28	10.6	6.1	64.7	6.5
29	11.1	6.9	76.5	7.6
30	11.2	6.5	73.0	8.9
Mean ± standard deviation	9.09 ± 1.51	7.02 ± 1.21	63.45	9.15 ± 3.51

serum calcium and the product of calcium and phosphorus (Ca × P product) are higher for the group receiving the aqueous dispersion than for the group given the oily solution. The differences for the serum calcium are not statistically significant when examined by the comparison of the means (Fisher,[13] p. 128): P (probability of chance occurrence) = 0.056. However, when one sets up a contingency table to examine the distribution of serum calcium values that are 9.6 mg. per hundred milliliters or less and greater than 9.6 mg., the differences between the two series of calcium values are statistically significant: chi-square (χ^2) = 6.64 and P = 0.01 (see Table 3; Fisher,[13] p. 89). In setting up the contingency tables, the principles

13. Fisher, R. A.: Statistical Methods for Research Workers, ed. 6, London, Oliver & Boyd, Ltd., 1936.

of Fisher's null hypothesis were applied, in which the a priori assumption is made that there is no difference between the group given the oily solution and that given the aqueous solution. The critical calcium value of 9.6 mg. was selected by dividing the calcium values (arranged in the order of magnitude) in the same ratio as exists between the number of infants treated with the oily (30) and the aqueous (35) preparations. Since there were two values of 9.6 mg., one of them was arbitrarily given the value of 9.58 and the other 9.62 mg.

TABLE 2.—*Comparison of Serum Calcium, Inorganic Phosphorus, and Alkaline Phosphatase of Premature Infants Receiving Vitamin D in Aqueous Dispersion I*

Case No.	Ca, Mg./100 Ml.	P, Mg./100 Ml.	Ca × P	Alkaline Phosphatase, Units
1	6.0	7.0	42.0	7.5
2	8.0	5.9	47.1	5.9
3	8.5	6.7	56.9	10.0
4	8.6	6.8	58.3	10.4
5	9.0	7.6	68.4	6.4
6	9.0	7.6	68.4	12.0
7	9.0	...	....	...
8	9.2	6.6	60.7	5.9
9	9.3	5.7	53.0	14.8
10	9.5	7.3	68.4	12.5
11	9.6	7.8	74.9	11.7
12	9.6	7.8	74.9	12.3
13	9.7	7.7	74.6	11.1
14	9.8	6.7	67.6	9.4
15	9.8	6.5	63.6	10.0
16	9.8	6.4	62.7	9.7
17	9.8	5.6	54.8	7.5
18	9.9	6.3	62.4	7.5
19	10.0	6.3	63.0	5.4
20	10.0	7.3	73.0	6.2
21	10.1	6.8	68.8	6.8
22	10.1	6.4	64.4	9.4
23	10.1	6.8	68.8	18.2
24	10.2	7.0	71.5	9.8
25	10.2	6.6	67.4	4.8
26	10.2	7.7	78.8	9.8
27	10.3	7.4	76.2	10.3
28	10.3	6.6	68.0	8.1
29	10.5	6.3	66.1	...
30	10.5	8.0	84.0	8.9
31	10.9	7.6	83.0	8.1
32	10.9	6.9	75.2	9.3
33	11.0	7.8	85.7	5.7
34	11.2	7.5	84.0	11.0
35	12.0	5.8	69.7	9.1
Mean ± standard deviation	9.79 ± 1.50	6.91 ± 0.23	67.83	9.36 ± 2.83

The differences between the serum inorganic phosphorus, phosphatase, and Ca × P products are not significant statistically, regardless of whether examined by the comparison of the means (Tables 1 and 2) or by contingency tables (Table 3). There are a number of high phosphatase values, which are in agreement with those found by Glaser and his associates [14] and are not abnormal for premature infants. The high phosphatase levels may be associated with the growth of these

14. Glaser, K.; Parmelee, A. H., and Hoffman, W. S.: Comparative Efficiency of Vitamin D Preparations in Prophylactic Treatment of Premature Infants, Am. J. Dis. Child **77**:1 (Jan.) 1949.

children, as indicated by Clark and Beck.[15] It is interesting to note that the extremes and the greatest deviations from the means are in the group who received the oily solution.

EVALUATION OF THE INCIDENCE OF RETROLENTAL FIBROPLASIA

The years September, 1943, through September, 1949, were covered in this study of the incidence of retrolental fibroplasia. This six-year period was divided equally by the introduction of an aqueous vitamin A preparation in September, 1946. Thus, during the one three-year period all the premature infants born in this hospital received vitamin A in oil,[5e] and during the other three-year period all premature infants born here received vitamin A in an aqueous medium.[5d]

TABLE 3.—*Statistical Analysis of Serum Values by Contingency Tables*

	Calcium = Less Than 9.6 Mg./100 Ml.			Calcium = More Than 9.6 Mg./100 Ml.			
Vitamin D Preparation Given	Found	Expected	χ^2	Found	Expected	χ^2	Total
Oily	19	13.84	1.93	11	16.16	1.65	30
Aqueous	11	16.16	1.65	24	18.84	1.42	35
Totals	30	30.00	....	35	35.00	....	65
$\Sigma \chi^2 = 6.64$				$P^* = 0.01$			

	Inorganic P = Less Than 6.9 Mg./100 Ml.			Inorganic P = More Than 6.9 Mg./100 Ml.			
Vitamin D Preparation Given	Found	Expected	χ^2	Found	Expected	χ^2	Total
Oily	11	14.06	0.641	19	15.94	0.568	30
Aqueous	19	15.94	0.568	15	18.06	0.500	34
Totals	30	30.00	.....	34	34.00	.....	64
$\Sigma \chi^2 = 2.277$				$P^* = > 0.10$			

	Ca × P Product = 67.5 or Less			Ca × P Product = 67.5 or More			
Vitamin D Preparation Given	Found	Expected	χ^2	Found	Expected	χ^2	Total
Oily	16	14.06	0.2692	14	15.94	0.2375	30
Aqueous	14	15.94	0.2375	20	18.06	0.2096	34
Totals	30	30.00	.....	34	34.00	.....	64
$\Sigma \chi^2 = 0.9537$				$P^* = > 0.30$			

	Phosphatase = 9.3 Units or Less			Phosphatase = 9.4 Units or More			
Vitamin D Preparation Given	Found	Expected	χ^2	Found	Expected	χ^2	Total
Oily	14	14.28	0.0549	16	15.72	0.0497	30
Aqueous	16	15.72	0.0497	17	17.28	0.0459	33
Totals	30	30.00	.....	33	33.00	.....	63
$\Sigma \chi^2 = 0.2002$				$P^* = < 0.70$			

* P is for one degree of freedom.

Method.—The premature infants were divided into three groups:

Infants receiving aqueous dispersion I [5d]
Infants receiving oil I [5e]
Infants not receiving a vitamin preparation

These main groups were subdivided by weight:

3 lb. or less (1,360 gm. or less)
3 lb. plus to 3 lb. 8 oz. (1,361 to 1,600 gm.)
3 lb. 8 oz. plus to 5 lb. 0 oz. (1,601 to 2,270 gm.)

The main groups were also subdivided by gestation period:

Under 32 weeks
32 to 36 weeks
36 weeks and up

15. Clark, L. C., and Beck, E.: Plasma "Alkaline" Phosphatase Activity: Normative Data for Growing Children, J. Pediat. **36**:335 (March) 1950.

The following information was obtained from the hospital records:

MOTHER	INFANT
Age	Sex
Race	Birth weight
Parity	Gestation period
Number of living children	Condition at time of birth
Rh compatibility	Type of birth
History of disease	Type of anesthetic used
History during pregnancy	Any abnormalities at birth
Condition of mother at time of birth	Race
All therapy received by mother	Oxygen administration and duration
Any family history of eye disease	Formula given
	Type and dose of vitamins given
	Age vitamin therapy started
	All therapy received by the infant
	All medications given
	Minimum and maximum weights
	Length of stay in the hospital

The infants were examined by our ophthalmologist, Dr. Ira Mensher, as well as by Dr. Robert Kahn and Dr. Bert Lasker.

Statistics.—There are approximately 120 surviving premature infants born at the Jewish Hospital of Brooklyn each year. Five hundred ninety-six of 787 infants

TABLE 4.—*Incidence of Retrolental Fibroplasia in Infants Given Aqueous and Oily Vitamin A Preparations in Relation to Weight*

Preparation	Retrolental Fibroplasia	Weight Groups: 3 lb. 9 oz. to 5 lb.	3 lb. 1 oz. to 3 lb. 8 oz.	3 lb. or Less
Aqueous dispersion I	Negative	224	36	20
	Positive	0	0	3
Oil I	Negative	189	26	17
	Positive	1	0	1
No supplement	Negative	72	5	2
	Positive	0	0	0

TABLE 5.—*Incidence of Retrolental Fibroplasia in Infants Given Aqueous and Oily Vitamin A Preparations in Relation to Gestation Time in Weeks**

Preparation	Retrolental Fibroplasia	Gestation Time in Weeks: Over 36	32-36	32 and Less
Aqueous dispersion I	Negative	82	70	32
	Positive	0	0	3
Oil I	Negative	65	52	21
	Positive	0	0	2
No supplement	Negative	28	10	0
	Positive	0	0	0

* Data on the infants for whom accurate gestation times were not available are omitted from this table.

were examined. Of these 596, there were five infants, four boys and one girl, with retrolental fibroplasia. Data on these infants are given in Table 4. An examination of these data shows that, except for one, the infants all were below 3 lb. 1 oz. (1,389 gm.) at birth. This infant weighed 3 lb. 10 oz. (1,644 gm.) at birth. Examination of the infants with retrolental fibroplasia in light of their gestation periods, instead of their birth weights, indicates that they had gestation periods of 32 weeks or less. (See Table 5.) Fifty-eight infants of the total series were in the lowest weight group. Forty-one of these children were examined. The possibility of having missed one case of retrolental fibroplasia is not likely because the private physicians in Brooklyn knew of our survey, and we were more likely to have reports on infants with the disease than on those without it.

Occurrence of Clinical Signs of Retrolental Fibroplasia.—Three of the five infants with retrolental fibroplasia were examined by the hospital ophthalmologist before their discharge from the hospital. Summaries of the examinations follow:

The first infant (Case 1) was examined at 21 days of age. The examination revealed "presence of lens changes in right eye; both fundi showed abnormalities." The condition in this infant was definitely diagnosed as retrolental fibroplasia at the age of 2 mo.

The second infant (Case 2) was examined at 27, 39, and 60 days of age. Each examination showed clear media and normal fundi.

The third infant (Case 3) was examined twice before his discharge at 46 days of age. The exact age at examination was not recorded, and the examination showed "clear media and normal fundi." In both Cases 2 and 3 diagnosis was made at approximately 4 mo. of age. These diagnoses were confirmed by Dr. Mensher.

The last two infants (Cases 4 and 5) were not examined before discharge from the hospital. In both cases diagnosis was made at about 4 mo. of age.

More data on these infants are given in the Appendix.

COMMENT

It is evident from these studies that vitamin D in aqueous dispersion prevents rickets in the premature. The aqueous dispersion of vitamin D [5d] was at least as effective as oily vitamin D solution in preventing rickets with the doses used. The doses of both were probably above minimal levels and were chosen to prevent the development of clinical rickets. Shelling and Hopper pointed out the importance of larger amounts of vitamin D for the prevention of rickets in the premature.[2] With aqueous vitamin D one can note a statistically significant trend for a higher serum calcium (see Tables 1, 2, and 3), suggesting a difference in favor of the aqueous dispersion of vitamin D. That the aqueous vitamin D preparation is likely to be better absorbed may be inferred from the clinical study of Shelling.[16] He found that "addition of viosterol to milk in the form of an emulsion enhances the efficacy of viosterol in curing moderate and severe rickets 10 fold." He further suggested that this was "due to the small particle size of the lipoids in which the vitamin D was carried and hence is probably more easily absorbed from the gastro-intestinal tract." Since Shelling's penetrating remarks appeared, it has been shown, at least for vitamin A, that the finely dispersed preparation is far better absorbed than the oily solution.[17] More recently this was also shown for vitamin E in aqueous dispersion compared with vitamin E in oily solution.[18] Owing to the availability of a relatively simple vitamin E method,[19] we have confirmed this observation by the vitamin E tolerance test. A typical result is shown in the Chart. In view of the known better absorption of vitamins E and A, Shelling's observations on emulsified vitamin D, and the higher serum calcium values obtained in this study, it is very likely that aqueous dispersions of vitamin D are better absorbed than oily solutions of the vitamin. (At present one of us, A. E. S., is investigating a chemical method for the estimation of vitamin D,

16. Shelling, D. H.: Calcium and Phosphorus Studies: Effect of Emulsification on Potency of Viosterol in Treatment of Rickets in Children, J. Pediat. **10**:748 (June) 1937.

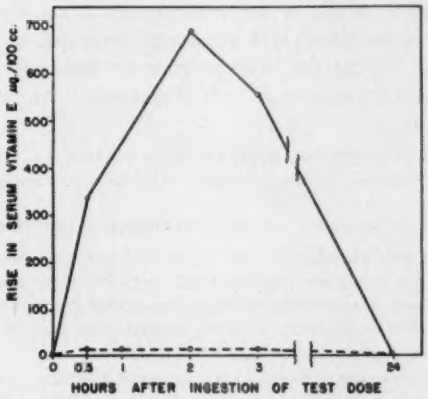
17. Footnote 1. Sobel and others.[3] Footnote 4*b* to *k*.

18. Sobel, A. E.; Rosenberg, A. A.; Geduldig, R.; Engel, E.; West, M., and Kramer, B.: Aqueous Dispersions of Fat-Soluble Vitamins, Federation Proc. **8**:253 (March) 1949.

19. Quaife, M.; Scrimshaw, N. S., and Lowry, O. H.: Micromethod for Assay of Total Tocopherols in Blood Serum, J. Biol. Chem. **180**:1229 (Oct.) 1949.

which, if successful, should provide more conclusive evidence.) Since our first report on aqueous vitamin A preparations,[3] we have been frequently asked, "Does administration of the aqueous dispersion of vitamin D prevent rickets?" This study permits an affirmative answer. We may add to the above observations at least one case in which there was response to use of aqueous vitamin D dispersion but not to the oily preparation.

Based on the present survey of retrolental fibroplasia in the premature infants born at the Jewish Hospital of Brooklyn, one may state that there has been no increase in the appearance of the disease in the three-year period, September, 1946, to September, 1949, when the aqueous dispersions were given, compared with the corresponding period, September, 1943, to September, 1946, when oil supplements were administered. Thus, it is clear that aqueous dispersion I [5d] has in no way contributed to the incidence of this disease—at least in relation to the previously used vitamin supplement, oil I.[5e] All the infants with retrolental fibroplasia



Comparison of vitamin E tolerance in a normal adult after the administration of vitamin E in oily (broken line) and aqueous (solid line) mediums. The aqueous vitamin E preparation was 36 mg. of pure *dl*-alpha-tocopherol acetate dissolved in 15 ml. of water containing 20% of dispersing agent. The oily vitamin E preparation was made by adding 36 mg. of pure *dl*-alpha-tocopherol acetate to 15 ml. of pure olive oil. The entire 15 ml. was given in the test.

fell into the group in which the gestation period was 32 weeks or less. One other infant who had retrolental fibroplasia with a gestation period of less than 32 weeks also came to our attention, outside of our 1943 to 1949 study period. The next best correlation in this series was with the birth weight. All but one infant weighed less than 3 lb. at birth. It is worth pointing out that in at least one infant the disease was detected at 21 days of age, while it was still in the hospital. In the others the disease was not recognized until after the infant's discharge. One is impressed with the small total number of infants having retrolental fibroplasia in our premature group. Because of this low total number, no positive correlation can be drawn relating the incidence of the disease with any of the factors examined as a possible etiological agent. This does not mean that a larger series of cases of retrolental fibroplasia will not alter these conclusions. That the incidence of the disease varies with geographical locations has already been indicated.[6b]

SUMMARY

The management of premature infants who received vitamin A and D supplements in aqueous dispersion is compared with that of premature infants who received vitamins A and D in oily solution. Special attention is paid to rickets and retrolental fibroplasia.

In the dosages employed both aqueous and oily vitamin D preparations prevented clinical and roentgenologic manifestations of rickets. The possibility of better results with aqueous dispersion of vitamin D is indicated by the higher serum calcium and products of calcium and phosphorus (Ca × P products). The evidence which indicated that aqueous dispersion of vitamin D is better absorbed is discussed. It can be affirmatively stated that vitamin D in aqueous dispersion I [5d] prevents rickets in the premature.

There was no increase in the incidence of retrolental fibroplasia during the period 1946 to 1949, when vitamin A was given in aqueous dispersion I,[5d] compared with the incidence of this disease when vitamin A was given in oil I.[5e] The mothers of all five of the infants with retrolental fibroplasia had gestation periods of 32 weeks or less. All but one infant weighed less than 3 lb. at birth. Because of the extremely low total number of cases of retrolental fibroplasia, no other conclusion can be drawn.

Aqueous dispersion I (vifort®) was supplied by Endo Products, Inc., Richmond Hill, N. Y., and oil I (percomorph liver oil) by Mead Johnson & Company, Evansville 2, Ind.

APPENDIX—CLINICAL HISTORY OF INFANTS WITH RETROLENTAL FIBROPLASIA

CASE 1.—A Negro girl, weighing 2 lb. 9½ oz. (1,176.5 gm.), was born Dec. 4, 1948, after 28 weeks' gestation. She was given evaporated milk with 5% dextri-maltose® and 0.6 ml. of aqueous dispersion I daily. Oxygen administration was necessary, but there were no abnormalities at birth. Her weight on discharge from the hospital at 62 days of age was 5 lb. 13 oz. (2,637 gm.).

The mother, a nullipara, was a 20-yr.-old Negro in fair condition. Her pelvis was normal. She had received a restricted diet since the seventh month of pregnancy. There was no medical or surgical history and no family history of eye disease. The father's family also had no history of eye disease.

CASE 2.—A white boy, weighing 2 lb. 3 oz. (992 gm.), was born March 16, 1949, after 30 weeks' gestation. He was given a special glucose formula, with 0.6 ml. daily of aqueous dispersion I. Oxygen was administered. Abnormalities at birth were a respiratory grunt and a foul smell. He was in the hospital 62 days. The weight at discharge was 5 lb. 12 oz. (2,608 gm.). He was given a transfusion of 50 ml. of packed red cells at 2 mo. of age.

The mother, a white secundipara, was 36 yr. old and in good general health. Her pelvis was normal. There was no medical or surgical history. In neither the mother's nor the father's family was there history of ocular disease.

CASE 3.—A white boy, weighing 2 lb. 8½ oz. (1,148 gm.), was born Feb. 5, 1949, after 31 weeks' gestation. His formula consisted of alacta® plus 7.5% dextri-maltose.® He was given 0.6 ml. daily of aqueous dispersion I. Oxygen administration was necessary. At birth respiration ceased, and artificial respiration was applied. He was in the hospital 65 days. His weight on discharge was 5 lb. 13 oz. (2,637 gm.).

The mother was a white nullipara, aged 23, in good general health with a normal pelvis. She lost blood-stained fluid before the birth. There was no surgical or medical history. Neither the mother nor the father had a family history of ocular disease.

CASE 4.—A white boy, weighing 2 lb. 11 oz. (1,219 gm.), was born Dec. 3, 1947, after 30 weeks' gestation. He was given 2:3 solution of evaporated milk with 5% dextri-maltose.® He received oil I, 8 drops daily. Oxygen administration was necessary. A transfusion was given at 3 weeks of age. He was in the hospital 48 days. The weight on discharge was 5 lb. 2 oz. (2,325 gm.).

The mother, a white primipara, aged 26, was in good general health and had a normal pelvis. There was no medical or surgical history, other than rose fever, and no family history of eye disease.

The father, a white man 29 yr. of age, also had no family history of eye disease.

CASE 5.—A white boy, weighing 3 lb. 10 oz. (1,644 gm.), was born April 3, 1946, after 32 weeks' gestation. He was given evaporated milk and 5% dextri-maltose® and 12 drops daily of oil I. Oxygen was given. A slight respiratory grunt was present at birth. He was in the hospital 38 days. The discharge weight was 5 lb. 5½ oz. (2,410 gm.).

The mother was a white nullipara, aged 36, in good general health and with a normal pelvis. There was a history of diabetes, but no family history of eye disease. The father was 41 yr. old and also had no family history of eye disease.

FETAL ASCITES

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THE TERM fetal ascites embraces a variety of conditions associated with watery accumulation in the fetal abdomen. Dorland,[1] reviewing the world literature up to 1919, reported 320 cases. Since that time, an additional 18 cases [2] of fetal ascites have been reported. In his excellent monograph, Dorland differentiated true fetal ascites, or an accumulation of serum in the fetal peritoneal cavity, from other conditions associated with watery accumulations in the fetal abdomen, namely, fetal urinary retention, generalized anasarca, congenital polycystic kidneys, cystic degenerations of the liver, and fluid distending the genital tract. The cause of true fetal ascites is obscure, but in many cases the condition is associated with malformations of the genital organs and imperforate anus. Fetal peritonitis is also a common finding and may result in ascites either through failure of the thickened peritoneum to reabsorb the normal peritoneal fluid or through an exudation from the inflamed peritoneum. The cause of the peritonitis which occurs with ascites is also often obscure, but it may be a pyogenic or tuberculous infection in the mother or a perforation of the fetal intestine resulting in meconium peritonitis.

According to Neuhauser,[3] fetal meconium peritonitis may be diagnosed roentgenographically by the appearance of intra-abdominal calcific deposits. Abt [4] lists other causes of fetal ascites as fetal cardiac failure, obstruction to the portal circula-

From the Department of Pediatrics, Beth-El Hospital.

1. Dorland, W. A. N.: Watery Accumulations in the Fetal Abdomen Obstructing Labor, Am. J. Obst. **79**:474, 1919.

2. (*a*) Alam, M.: Abnormal Labor (Hydrothorax and Ascites in Foetus), Indian M. Gaz. **57**:260, 1922. (*b*) Rizzuto, G. A.: Fetal Ascites, Riv. d' ostet. e ginec. prat. **4**:23, 1922. (*c*) Palieri, D.: Fetal Ascites, Rassegna d'ostet. e ginec. **34**:321, 1925. (*d*) Ewer, J. N.: Dystocia Due to Fetal Ascites: Report of Case, California & West. Med. **33**:814, 1930. (*e*) Gupta, N., and Das, P. C.: Foetal Ascites, Indian M. Gaz. **66**:186, 1931. (*f*) Ricard, A.: Fetal Ascites Causing Dystocia, Union méd. du Canada **61**:596, 1932. (*g*) Hunter, R. H.: Fetal Ascites, Lancet **2**:999, 1932. (*h*) Champeau, J.: Fetal Syphilis and Congenital Ascites, Union méd. du Canada **62**:549, 1933. (*i*) Moore, E. B.: Two Obstetric Cases: Eversion of Uterus; Fetal Ascites, M. J. Australia **2**:218, 1933. (*j*) Brault, P., and Tison, A.: Radiological Diagnosis of Intra-Uterine Fetal Ascites, Bull. Soc. d' obst. et de gynec. **23**:36, 1934. (*k*) Brando, P.: Dystocia Due to Fetal Ascites, Rev. de gynec. e d' obst. **28**:181, 1934. (*l*) Ellison, E. T.: Obstructed Labor Due to Fetal Ascites, Am. J. Obst. & Gynec. **40**:1057, 1940. (*m*) Clayton, J. W., and Ford, R. M.: Case of Fetal Ascites, M. J. Australia **1**:537, 1943. (*n*) Magyar, K.: Fetal Ascites Obstructing Labor, Gynaecologia **122**:363, 1946.

3. Neuhauser, E. B. D.: The Roentgen Diagnosis of Fetal Meconium Peritonitis, Am. J. Roentgenol. **51**:421, 1944.

4. Abt, I. A.: Fetal Peritonitis, M. Clin. North America **15**:611, 1931; Ascites in Infants, ibid. **16**:507, 1932.

tion, and other liver diseases, such as syphilis and cirrhosis. Chylous ascites,[5] due to an obstruction of the thoracic duct, is easily differentiated from other types of fetal ascites by the appearance of the fluid.

As a rule, the pregnancies of patients delivered of infants with ascites are uncomplicated by either infection or toxemia, although premature birth is common. When fetal ascites is associated with generalized anasarca, however, signs of toxemia in the mother are not uncommon. Magyar [2n] found toxemia in the mother and suggested renal dysfunction as a possible cause, in his report of a case of fetal ascites in which fetal urinary retention resulted from a stricture of the membranous urethra. The increased size of the abdomen of a fetus with ascites may also cause a more marked enlargement of the maternal abdomen, and the enlarged fetal abdomen is often a cause of obstructed labor. Frequently rupture of the abdomen of the fetus occurs, either spontaneously or operatively during delivery. Brault and Tison [2j] were able to diagnose roentgenographically fetal ascites in utero by the appearance of a distended fetal abdomen and extended position of the extremities. The ascitic fluid in cases of true fetal ascites has the characteristics of a transudate: It is clear yellow or amber, has a specific gravity of 1.002 to 1.010, gives an alkaline reaction, and contains chlorides, sulfates, phosphates, protein, sugar, and sometimes urea. As much as 15 l. of fluid may be present, but the average is 3 to 4 l. The prognosis in any case of fetal ascites is poor, since practically all patients die; Dorland,[1] however, cites one case in which the patient recovered.

The following case of fetal ascites is reported because of the rarity of the condition and the interesting differential diagnosis which it presents.

REPORT OF A CASE

F. S., a white girl, was delivered on July 6, 1949, at the Beth-El Hospital, to a 21-yr.-old white primipara in the 35th week of gestation. Pregnancy had been completely uneventful, the mother's blood pressure and urine had remained normal, and delivery was uncomplicated. Caudal anesthesia and low forceps were used. At birth, however, the infant appeared acutely distressed, with shallow, labored respiration, and cyanosis of the skin and mucous membranes. The face had a flattened appearance, and the eyelids were edematous. Rales were present throughout both lung fields. The heart sounds were good, and no murmurs were heard. The abdomen was markedly distended and tense, and a fluid wave could be elicited. No abdominal organs or masses could be palpated. The genitalia appeared normal except for some edema of the vulva. Rectal examination revealed no significant findings and the extremities showed no abnormalities. Meconium was passed soon after birth. Because of the infant's poor condition and premature birth, she was admitted to the premature nursery, despite a birth weight of 5 lb. 9 oz. (2,525 gm.). In the nursery a catheterized urine specimen was obtained, which was acid in reaction and negative for albumin, sugar, acetone, and cellular elements except epithelial cells. A plain roentgenogram of the abdomen revealed gas in the stomach and small intestines, with obliteration of the properitoneal fat lines indicative of increased intra-abdominal pressure. No dense abdominal organs could be identified. In the meantime, oxygen, penicillin, and vitamin K were administered. Five hours after delivery, paracentesis was performed, and 500 cc. of a clear yellow fluid was removed. After this procedure, the infant weighed 4 lb. 5 oz. (1,955 gm.) and the respiratory distress was immediately relieved. Re-examination of the abdomen after removal of the fluid revealed no enlarged abdominal organs. Matted loops of intestines could be felt, however, especially in the left upper quadrant. Examination of the ascitic fluid revealed

5. Wegner, E. S.: Congenital Chylous Ascites: Apparently Cured by Routte's Operation (Venous Peritoneal Anastomosis), Am. J. Dis. Child **47**:586 (March) 1934.

a specific gravity of 1.013, 90 mg. of sugar, 14.6 mg. of urea nitrogen, 4.0 gm. of total protein, 2.8 gm. of albumin, 1.2 gm. of globulin per 100 cc. There were no cells, and culture was sterile. A serological test for syphilis gave a negative reaction.

The next morning the infant's condition appeared improved. Respirations were no longer labored, cyanosis was diminished, and the lung fields were clear. The infant voided spontaneously, and meconium was passed, which was seen on microscopic examination to contain amniotic cells. A blood count revealed 6,100,000 red cells, 124% hemoglobin, 8,000 white cells with a normal differential distribution and no normoblasts. Repeated urine examinations showed nothing significant. Both mother's and infant's blood types were O Rh-positive. Oral feedings were begun, but small amounts of each feeding were regurgitated along with bile, and abdominal distention reappeared. On July 9, the fourth day of life, an exploratory laparotomy was performed. There was about 250 cc. of a straw-colored fluid in the peritoneal cavity. The peritoneum was markedly thickened, and there were matting down and multiple adhesions of both small and large intestines. Some intestines were adherent to the left lobe of the liver, which was about 4 cm. below the costal margin but appeared normal otherwise. The portal area appeared normal, and there were no distended veins. There were no abnormalities of the stomach or duodenum, and no atresia or perforation of the small or large intestine was found. The gall bladder appeared normal. Both kidneys also appeared normal in size and shape, and the appendix and pelvic organs revealed no abnormalities. No intra-abdominal meconium or calcifications were found. The fluid was removed, some adhesions were separated, and a biopsy specimen of peritoneum was taken, which revealed moderately thickened, fibrotic, chronically inflamed peritoneum. The infant withstood the procedure well. Postoperatively, however, oral feedings were again not well retained, although small yellow-brown stools were passed occasionally, and the infant was maintained on fluids given parenterally. Despite attempts at decompression by means of Wangensteen suction, enemas, hot stupes, and neostigmine (prostigmin®) methylsulfate, the abdomen became progressively more distended. On July 15, seven days postoperatively, repeat roentgenograms of the abdomen revealed a fluid level in the midabdomen and gaseous distention of loops of small intestine. There was still marked enlargement of the abdomen. Roentgenograms of the heart and lungs showed no abnormalities. In the long bones, however, irregular calcific deposits were seen in the region of the epiphyses of the lower ends of the femurs, in both feet, and in the hip joints, with coarse trabeculations in all the long bones. Although it was obvious that intestinal obstruction was present, further surgery was not considered advisable, and on July 19, the 14th day of life and 11th postoperative day, the infant died.

The postmortem examination revealed the following facts: The peritoneum was markedly thickened, edematous, and greenish-black. There was a large amount of brownish fluid containing specks of brown material throughout the peritoneal cavity. The loops of small intestine were matted together by fibrinous adhesions, and loops of jejunum were plastered against the left lobe of the liver. The pleural cavities were filled with a large amount of clear yellow fluid, and the lungs were collapsed. Microscopically, the lungs showed only some congestion. The heart, thymus, trachea, bronchi, spleen, pancreas, kidneys, bladder, genitalia, adrenals, and brain were all essentially normal. In the gastrointestinal tract there was a greenish-black fibrinous exudate covering the serosal surfaces of the intestines and fibrous thickening of the subserosal layers, but no evidence of perforation or atresia was found. The liver, however, had an abscess cavity 3 cm. in diameter in the anterior aspect of the left lobe. At the inferior border of the left lobe, there was a hole 1.5 cm. in diameter, which communicated with the cavity. Loops of small intestine had partially sealed off this perforation in the liver. The architecture of the liver remained relatively intact. A section through the wall of the abscess revealed extensive acute and chronic inflammatory infiltration and hemorrhage. The final anatomical diagnoses were ascites, peritoneal fibrosis, and liver abscess probably resulting from the surgical intervention.

COMMENT

This case seems to fall into Dorland's category of true fetal ascites associated with chronic peritonitis, the causes of which remain undetermined. Inasmuch as the ascitic fluid obtained on paracentesis showed no evidence of an exudative process,

it is likely that the inflammatory exudate found at autopsy was a result of the operative intervention. Moreover, no evidence was found of a meconium peritonitis as described by Fischer [6] in his case of fetal peritonitis following spontaneous rupture of the small intestine. A remote possibility for the cause of the ascites is suggested by a thickened peritoneum which might prevent reabsorption of normally present peritoneal fluid.

SUMMARY

A case of fetal ascites is reported. The literature is reviewed, and a possible etiological factor is suggested.

Rockaway Parkway and Avenue A.

6. Fischer, A. E.: Fetal Peritonitis: Report of Case Following Spontaneous Rupture of Large Intestine, Am. J. Dis. Child. **36**:774 (Oct.) 1928.

Case Reports

ERYTHEMA MULTIFORME EXUDATIVUM

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IN MANY of the articles and case reports on erythema multiforme exudativum appearing in the more recent literature, treatment with aureomycin,[1] penicillin,[2] the sulfonamides,[3] and streptomycin [4] has been emphasized and has apparently played an important part in the recovery of patients suffering from this disease. However, it has been repeatedly stressed by all that supportive treatment with the parenteral administration of fluids, electrolytes, protein, and vitamins is of the utmost importance.

Our purpose here is to report a case resulting in complete recovery without the material aid of antibiotics or sulfonamides and to reemphasize the necessity of maintaining an adequate intake of fluids, electrolytes, and protein by parenteral means.

REPORT OF CASE

M. G., a white girl, 8 yr. old, was admitted on Nov. 6, 1949, and had apparently been well until three days before admission, at which time she complained of a midfrontal headache. Acetylsalicylic acid, 5 grains (0.32 gm.), was given and brought subsequent relief. That night she ate and slept well, but the following morning she complained of her eyes hurting. When the child returned from school that afternoon, her mother noticed that her eyes were red and "running cold." One day prior to admission, fever was noticed for the first time, the eyes were swollen and red, the lips were swollen, and the child complained of a sore mouth. In addition, a previous

From Grady Memorial Hospital.

1. Lynas, M. A.: Aureomycin in Stevens-Johnson Syndrome, Lancet **1**:373 (Feb. 25) 1950. Church, W. E.: Erythema Exudativum Multiforme and Pneumonia Treated with Aureomycin, ibid. **1**:281 (Feb. 11) 1950.

2. (*a*) Wright, D. O.; Gold, E. M., and Jennings, G.: Stevens-Johnson Syndrome: Report of 9 Patients Treated with Sulfonamide Drugs or Penicillin, Arch. Int. Med. **79**:510 (May) 1947. (*b*) Johnstone, D. F.: Fatal Case of Stevens-Johnson Syndrome, Lancet **2**:276 (Aug. 23) 1947. (*c*) Shaffer, B., and Morris, P.: Severe Erythema Multiforme of the Pluriorificial Type (Stevens-Johnson Syndrome) Resulting in Blindness in a Patient Treated with Trimethadione (Tridione), Pediatrics **2**:30 (July) 1948. (*d*) Wright, R. D.: Stevens-Johnson Syndrome, with Case Report, Mil. Surgeon **105**:294 (Oct.) 1949. (*e*) Dresner, E.: Erythema Multiforme Exudativum (Stevens-Johnson Syndrome), Lancet **2**:1036 (Dec. 3) 1949. (*f*) Nellen, M.: Stevens-Johnson Syndrome: Report of a Case, ibid. **1**:326 (March 15) 1947. (*g*) Kove, S.: Stevens-Johnson Syndrome (Eruptive Fever with Stomatitis and Conjunctivitis), Am. J. M. Sc. **210**:611 (Nov.) 1945. (*h*) Wentz, H. S., and Seiple, H. H.: Stevens-Johnson Syndrome, Variation of Erythema Multiforme Exudativum (Hebra): Report of 2 Cases, Ann. Int. Med. **26**:277 (Feb.) 1947. (*i*) Goldfarb, A. A.: Case of Stevens-Johnson Disease (Erythema Multiforme Bullosa) Treated with Penicillin, J. Pediat. **28**:579 (May) 1946. (*j*) Patz, A.: An Eruptive Fever Involving the Skin and Mucous Membranes (Stevens-Johnson Disease), New England J. Med. **236**:697 (May 8) 1947.

3. Footnotes 2*a*, *b*, *e*, *f*, *g*, and *i*.

4. Shaffer and Morris.[2c] Dresner.[2e]

mild cough had become severe and more frequent. She was brought to the Grady Memorial Hospital Emergency Clinic, and physical examination at that time revealed a temperature of 101.2 F., moderate pharyngitis, and angioneuroticlike edema of the lips. The patient was moderately dyspneic, and examination of the chest revealed asthmatic squeaks and wheezes throughout, with crepitant rales in the lower lobe of the left lung. Treatment consisted of 3 minims (1.8 ml.) of 1 : 1000 epinephrine solution and 1 grain (0.06 gm.) of phenobarbital sodium

Fig. 1.—Confluent papular and vesicular rash on upper trunk, denuded areas, and bleeding.

Fig. 2.—Confluent rash on back.

(luminal sodium®) given subcutaneously; 1 cc. of 1 : 500 epinephrine in oil and 300,000 units of penicillin procaine given intramuscularly, and sulfadiazine, a proprietary expectorant,[5] and ⅛ grain (0.008 gm.) of ephedrine sulfate given orally. During the next hour the lips became more swollen and the eyes more painful, with the result that the patient was taken to her private

5. The preparation used was cheracol,® a sedative expectorant containing codeine phosphate, chloroform, potassium guaiacolsulfonate, ammonium chloride, and antimony and potassium tartrate, with white pine and wild cherry bark.

physician, who prescribed tripelennamine (pyribenzamine®) elixir and aminophylline suppositories. Later that afternoon, because of no evident improvement, she was brought back to the emergency clinic, and at that time the only changes from the previous examination were a temperature of 103.2 F., the absence of wheezes throughout the chest, and the presence of severe photophobia. No additional treatment was prescribed. That night, an erythematous rash developed on the face, the fever was higher, and the child became delirious. She was returned to the emergency clinic around 2:30 a. m. the following day. Physical examination revealed the previously mentioned findings, and, in addition, respirations were 40 a minute, the lips and mucous membranes of the mouth were denuded, and a generalized erythematous maculopapular rash was present, most marked on the face and along the hairline, moderate on the chest, and slight on the back, abdomen, and extremities, with the soles and palms being clear. The impression of the examiner was measles and bronchopneumonia. Treatment consisted of 300,000 units of penicillin procaine given intramuscularly, with instructions to continue the administration of sulfadiazine and acetylsalicylic acid. During the ensuing 10 hr. the patient became progressively worse, evidenced by high fever, rapid spread of the rash, and inability to eat; consequently, she was admitted to the contagious disease unit of Grady Memorial Hospital.

Fluid Therapy *

	Oral Intake, Cc.		Intravenous Intake, Cc.								Total Intake		
Hospital Day	Water	Tube Feeding	Albumin	5% Dextrose in D. W.	10% Dextrose in D. W.	5% Dextrose in I. S. C.	I. S. C.	Plasma	Blood	Protein Hydrolysates	Fluid, Cc./Cal.	Saline Value	Protein, Gm.
1	585	...	...	1,500	...	300	...	250	...	.....	2,635/ 410	425	12.5
2	80	...	...	1,000	500	250	...	250	200	200	2,480/ 660	475	32.5
3	140	...	...	500	500	100	300	250	200	1,000	2,990/1,010	625	72.5
4	190	...	...	1,000	500	300	100	250	200	1,000	3,540/1,150	625	72.5
5	180	600	100	250	...	500	...	...	300	1,000	2,930/1,377	710	111.6
6	...	2,100	100	.....	1,000	500	...	...	...	1,000	4,700/3,147	710	150.6
7	...	300	100	500	...	750	...	...	250	1,000	2,900/1,280	905	98.3
8	...	1,600	...	400	...	400	...	...	250	1,000	3,650/2,292	685	120.1
9	...	1,800	...	.....	1,500	200	...	...	...	500	4,000/2,607	380	89.8
10	600	700	...	500	...	275	...	...	...	1,000	3,075/1,408	345	75.2
11	400	700	...	500	...	200	...	...	...	500	2,300/1,088	270	50.2
12	550	1,000	...	.....	...	...	...	...	...	.....	1,550/ 926	100	36.0
13	...	1,200	...	500	...	200	...	...	...	1,000	2,900/1,851	320	93.2
14	200	1,200	...	500	...	200	...	...	...	1,000	3,100/1,851	320	93.2
15	200	1,000	...	.....	...	...	...	...	...	.....	1,200/ 926	100	36.0

* Tube feeding contains 11.3% carbohydrate, 3.6% protein, 3.7% fat, and 92.6 Cal. per 100 cc. There are 2 gm. of NaCl in 2,000 cc. D. W. indicates distilled water; I. S. C., isotonic sodium chloride solution.

A review of the past history revealed that the patient had mumps at 4 yr., measles at 6 yr., and croup at 7 yr. The croup had been treated with penicillin and sulfadiazine, with no evidence of reactions to these drugs.

Inquiry into the family history was essentially noncontributory, especially in reference to allergy, although the patient's mother had had, one week previously, a mild upper respiratory tract infection, with vesicles on the upper lip and alae nasi.

Physical examination on admission showed an acutely and desperately ill child, with a temperature of 105.6 F., a respiratory rate of 36 a minute, and a pulse rate of 140 a minute, who shook with repeated chills. The face was swollen and erythematous, with maculopapular and vesicular lesions of the forehead, cheeks, and chin. On the neck and upper chest was a confluent vesicular and maculopapular rash on an erythematous base. The lesions decreased in severity from head to foot, being of a discrete maculopapular nature over the lower chest and abdomen, while on the lower arms and legs there were only scattered erythematous macules. The conjunctivas were markedly injected; subconjunctival hemorrhages were present, and there was a profuse, thick, yellow ocular exudate. Both tympanic membranes were injected, and the nasal mucous membranes were denuded and bleeding. The mouth was filled with a yellow, mucopurulent, foul-smelling exudate, and the lips and buccal mucosas were ulcerated and bleeding. The pharynx could not be visualized. Respirations were rapid and shallow, and there was dullness on percussion of the right upper and left lower parts of the chest. On auscultation coarse rhonchi were present throughout, and breath sounds were diminished in the right upper

chest and left lower chest posteriorly. Scattered fine and medium rales were heard in the upper lobe of the right lung. The heart was normal. There was a mild inflammation of the apposing surfaces of the labia minora.

The admission diagnoses were erythema multiforme exudativum and acute catarrhal otitis media.

Course in Hospital.—During the first hospital day, November 6, the temperature remained at 105 F. with the exception of short intervals during which minimal sponging was done and ice packs applied. Rapid progression of the rash occurred, with the vesicular elements becoming huge bullae filled with clear, serous fluid. Administration of penicillin, 50,000 units every three hours, was started, but on the advice of consultants, all medication, with the exception of acetylsalicylic acid, epinephrine, and tripelennamine, was discontinued.

On the second hospital day the child began to complain of extremely painful urination. The temperature ranged between 102 and 104 F., and although her general condition seemed more critical, she remained lucid and would state, on questioning, that she felt "fine." The vesicles and flaccid bullae had spread to the upper chest, and an almost confluent papular and vesicular rash with hemorrhagic phenomena had involved the entire trunk. Nikolsky's sign was positive,

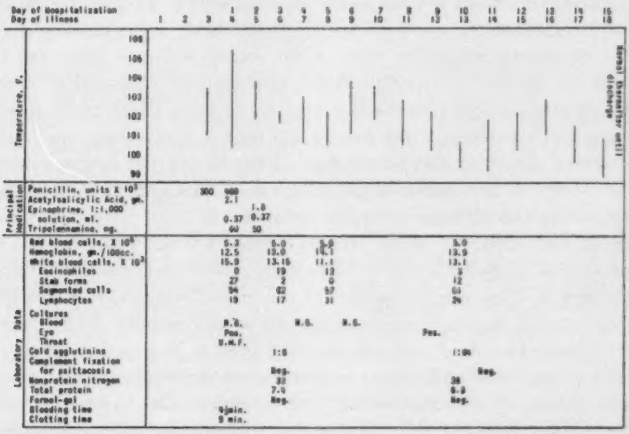

Fig. 3.—Course in hospital and principal medication. Additional drugs administered, which were given in smaller amounts, are listed in the text. *N. G.* indicates no growth; *U. M. F.*, usual mouth flora; eye cultures were positive for Staphylococcus aureus, coagulase positive.

as evidenced by the appearance of denuded areas wherever there had been the slightest amount of trauma.

During the next 48 hr. speech became unintelligible because of the profuse exudate and crusting involving the lips and mouth. The eyelids were stuck together, despite frequent boric acid solution irrigations. The areas of denuded skin and bleeding continued to enlarge; the macular and papular lesions of the extremities assumed a brown color, and the palms and soles were involved with confluent erythematous macular lesions. It was felt that the child's general condition was deteriorating, despite almost constant intravenous fluid therapy, and other procedures, such as the administration of aureomycin or chloramphenicol (chloromycetin®) and the application of pressure dressings, were suggested but discarded.

On the fifth hospital day it was felt by observers that the patient was finally improving, although the skin lesions appeared severer than ever. However, the distal progress of the bullae had apparently ceased, and the axillas and the inguinal regions remained free of cutaneous manifestations. A small quantity of a prepared tube feeding was ingested, and serum albumin was given intravenously for the first time.

During the sixth and seventh days of hospitalization hematemesis, suggesting sloughing of the upper gastrointestinal tract mucosa, occurred on several occasions. The temperature remained

between 101 and 104 F., although fluid intake was seemingly more than adequate (Table). No healing of the lesions had occurred, and the loss of serum was still our major problem.

On the eighth day of hospitalization the skin, with the exception of the neck and shoulders, became dry for the first time since admission. The following day the patient was able to open her eyes and simultaneously began to complain of numerous things.

The remainder of the convalescent period was uneventful, and on December 3, after 28 days in the hospital, she was discharged. At that time there were numerous areas of hyperpigmentation of the skin, but these have since completely cleared. Subsequent visits to the eye clinic have been necessary because of the development of adhesions and cysts of the tarsal conjunctivas. In addition to surgery, these have been treated with sulfathiazole ophthalmic ointment, without recurrence of allergic manifestations. Her present vision is right eye 15/25 and left eye 15/30 without glasses.

COMMENT

This disease has been ascribed by some authors to a drug-sensitivity, with acetophenetidin, sulfathiazole, sulfadiazine, chloral hydrate, belladonna, phenobarbital, diphenylhydantoin sodium, and acetylsalicylic acid being mentioned as causative agents. Others favor a virus as the etiologic agent. In our case no drug can be definitely incriminated, although acetylsalicylic acid, 5 grains, was given once during the prodromal stage. In view of the strong evidence presented by some workers for the theory of hypersensitivity, our regimen consisted in withholding practically all drugs on the premise that any one of them might cause an exacerbation of signs and symptoms. This patient did receive a relatively small amount of penicillin during the third and fourth days of her illness, but it was evident to all those who observed, and followed the progress of this patient that the penicillin played no part in the ultimate favorable outcome.

As stated previously, one of the primary purposes of this case report is to stress the importance of adequate amounts of protein, electrolytes, and fluids in the supportive therapy in these cases. Because of the marked similarity of this disease to an extensive second degree burn, as evidenced by the constant progressive loss of plasma or plasma-like fluid through the skin over a long period, with resulting dehydration of the blood and, unless properly treated, circulatory and renal failure with tissue anoxia, it was our feeling that treatment should be directed toward preventing those end results. (It is interesting to note that Heller and Sloane [6] have recently reported a case in which petrolatum pressure dressings were a vital part of the treatment.)

We feel that we have shown the very definite beneficial results that may be obtained by the daily administration of somewhat larger quantities of fluids, electrolytes, and protein than are usually recommended in the treatment of this condition and that this is the major therapeutic problem, although antibiotic and chemotherapeutic agents may still be regarded as valuable adjuncts and should probably be used, if the possibility of reactions on a hypersensitivity basis can be ruled out.

SUMMARY

A case of erythema multiforme exudativum is presented.

Recovery was effected without the aid of antibiotic or chemotherapeutic agents.

Emphasis is placed on the adequate administration of fluids, electrolytes, and protein.

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6. Heller, G., and Sloane, M.: Erythema Bullosum Malignans Following Dilantin Therapy, Pediatrics **5**:836, 1950.

METASTATIC CALCIFICATION IN THE NEWBORN

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METASTATIC calcification may be defined as a deposition of calcium or calcium salts in abnormal locations in the body. This manifestation is quite uncommon in children and is especially unusual in the newborn. The occurrence of the condition in a young infant, in association with congenital anomalies of the gastrointestinal and urinary systems, makes it worthy of presentation.

REPORT OF A CASE

B. K., a white boy, was born on Aug. 17, 1949, to a 35-yr.-old mother and a 38-yr.-old father. Both parents had always been in good health. The mother was pentagravida, tetrapara, and had had no miscarriages. Her Mazzini reaction was negative. All previous pregnancies and deliveries were normal. The present pregnancy was uneventful. The delivery was normal and spontaneous, and the infant weighed 8 lb. 6 oz. (3,800 gm.) at birth.

Shortly after admission to the nursery it was noted that he had an atresia of the rectum. There was no dimpling of the skin to denote the location of the proctodeum, and the anal sphincter could be outlined with difficulty. By the following morning the abdomen had become moderately distended, and the infant vomited some mucus. A roentgenogram of the abdomen was taken, employing the Wangensteen-Rice technique. It revealed a gap of several centimeters between the air column in the rectum and the metal marker on the anus. Although this is not a particularly reliable guide, it did lend added weight to the opinion that radical surgery involving reconstruction of the atretic rectum was not advisable at this time. A blood count revealed the following: red blood cells, 5,090,00; hemoglobin, 84%; white blood cells, 44,900; polymorphonuclear leukocytes, 77%; lymphocytes, 18%; eosinophils, 4%, and monocytes, 1%. A cecostomy was performed (Dr. Charles Engelsher), and a catheter was inserted into the cecum. The colon was found to be moderately distended, but following the expulsion of flatus and meconium through the cecostomy opening, the bowel became deflated. The infant was given parenteral fluids and within a day began to take its formula quite well. In a few days well formed normal yellow stools were passed through the cecostomy opening. Penicillin and streptomycin were given daily from the day of operation.

Within a week after operation the urine was noted to have a foul odor. At first this was attributed to the mixture of stool and urine in the diaper. However, it is known that in many cases of atresia of the rectum in males, there is a rectovesical or rectourethral fistula. This was investigated, and no stool was found in the urine. Examination of the urine did reveal a few pus cells and a trace of albumin. Aureomycin was added to the other antibiotic medication. During the first week administration of polyvitamin drops (vifort®) once daily was begun and continued.

During the second postoperative week the urine appeared clear and was free of abnormal findings. Meanwhile, a fecal fistula developed, and the stool was apparently passed from the terminal ileum proximal to the cecostomy opening.

Despite the excellent appetite and normal stools, the infant did not gain weight, and in the following weeks there was a slow and progressive weight loss. The skin around the cecostomy

From the Pediatric Service of the Parkchester General Hospital.

began to slough, and bacitracin ointment was applied. The dose of polyvitamin drops was increased to 20 drops twice daily, and ascorbic acid administration, 100 mg., was added.

Seventeen days after the first operation, a transfusion was given, and the second operation was performed. A left rectus incision was made, and the terminal end of the rectum was found densely adherent to surrounding structures, although no fistulous communication with the bladder or urethra existed. The atretic rectum was freed. The anal sphincter was identified, and an opening was made from the perineal aspect. The rectum was brought down, opened, and sutured in place. There was no evidence of other obstruction in the large bowel.

After this operation urinary retention developed, and catheterization was required for the next five days. The urine was again foul and was found to contain many pus and red blood cells and occasional casts. Meanwhile, the baby ate well and passed normal stools through the ileal fistula. An attempt to do an intravenous pyelogram was unsuccessful. Since no stools were passed by rectum, the following procedure was done: A catheter was passed proximally from the anus, and another catheter was passed distally from the cecum. Iodized oil U. S. P. (lipiodol®) was instilled in the latter. A roentgenogram revealed that the proximal catheter extended through the transverse colon and the distal catheter reached the descending colon. Iodized oil did reach the rectum. Methylene blue was also injected into the proximal catheter, but did not reach the rectum. Roentgenograms of the long bones at this time showed no evidence of abnormality.

The infant's condition became progressively worse. Feedings were poorly taken, and gavage with formula and casein hydrolysates was done. The stools became loose and green. The incisions were slow in healing, and the wounds continued to drain. The urine became more cloudy and was full of pus cells. During the last two weeks of life extensive areas of ecchymoses developed; first on the lower extremities, and then over the entire body. Despite all supportive measures, the infant died on Oct. 7, at the age of 51 days.

Autopsy Report (by Edith Grishman, pathologist).—The body was that of a 7-week-old emaciated boy. In the right lower quadrant a patent cecostomy opening was present. There was a partly healed left lower rectus incision, the skin edges being separated, while the underlying fascia showed granulations. There were patches of ecchymoses, but no edema or jaundice.

The abdomen contained about one-half pint (236 ml.) of yellowish fluid. Some fibrin flakes were found in the right lower quadrant. There were firm adhesions around the descending colon and sigmoid.

The heart was of the usual size and shape. The pericardium was smooth. The valves were thin and delicate. There were no abnormalities.

The pleural cavities contained no free fluid. The lungs were pinkish and well aerated. On section they showed a rather dry, pinkish-red cut surface. The trachea and bronchi were not unusual.

The liver was of normal size and shape. The cut surface was uniformly reddish brown. The bile ducts were patent. The gall bladder contained a small amount of yellowish bile. The spleen showed fibrous adhesions at the surface. On section it showed a rather firm, purplish-red cut surface.

Pancreas and adrenals were not unusual. Both kidneys were moderately enlarged. The capsules stripped easily, revealing mottled, yellowish-pink smooth surfaces. The same mottling was seen on section, in addition to scattered small abscesses. The medulla showed moderate atrophy, due to dilatation of the pelvic calyces, which reached pea size. The pelvic mucosa was slightly reddened. Both ureters were dilated, measuring up to 1 cm. in diameter. The ureterovesical openings were patent. The bladder was markedly enlarged and thickened; the wall measured up to 6 mm. The mucosa was reddened and trabeculated. The urethra could be probed with a 2 mm. sound. Esophagus and stomach were not unusual. The small intestine was markedly distended and contained bile-stained, semifluid material. The entire colon was collapsed. The wall appeared somewhat thickened. The lumen contained very viscid white material. The lower end of the sigmoid had been anastomosed to the anus. The anastomosis was patent. The brain and meninges showed no gross abnormalities.

Microscopic Examination.—In the heart many coronary artery branches showed so-called medial calcification and intimal thickening. There were widely scattered calcifications of myocardial fibers. Small bacterial colonies in pericardial fat tissue were surrounded by histiocytes

and occasional foreign body giant cells. The liver showed slight hemosiderosis. In the adrenals there were calcification and sclerosis of periadrenal arteries and a bacterial colony in periadrenal fat. In the kidneys there were many tubules dilated and filled with polymorphonuclear leukocytes and necrotic material. Scattered small abscesses were found, and there were small areas of calcification in interstitial tissues. Acute and subacute pyelitis, calcification of arteries, and bacterial colonies in pelvic tissue were also found.

Diagnoses.—The diagnoses were status six weeks postcecostomy for anal atresia; status one month postanorectal anastomosis; ascites, localized fibrinous peritonitis, fibrous adhesions of spleen, bilateral hydronephrosis and pyelonephritis with abscesses, bilateral hydroureters, acute and subacute cystitis, bacterial emboli in pericardial and periadrenal fat, and metastatic calcifications of myocardium, coronary, renal, and adrenal arteries and kidneys.

Cause of Death.—Bilateral acute and subacute pyelonephritis with sepsis was the cause of death.

COMMENT

The finding of metastatic calcification in this infant led us to suspect that the lesions of the urinary tract, both the congenital hydroureter and hydronephrosis and the acquired infection, plus the atresia of the rectum, were causally related in some way.

Atresias of the rectum are often associated with anomalies of the urinary tract, usually a rectovesical or rectourethral fistula. However, none was found in this case, although dense adhesions were found between the bladder wall and terminal end of the rectum. It is likely that some abnormality existed in the urethra, although no obstruction could be demonstrated. Vail and Stone [1] pointed out that urethral valves, strictures, and hypertrophied colliculus seminalis were the chief causes of postvesical obstruction, leading to congenital hydroureter and hydronephrosis. Other causes include hypertrophy of the vesical neck, due to hyperplasia of gland or connective tissue.[2] It is reasonable to assume that the obstruction was postvesical, in view of the marked hypertrophy of the bladder wall. Infection must have developed early in this infant and did not respond to varied antibiotic therapy.

In the figure, *A* reveals the deposit of calcium in the inner elastic lamina of a coronary artery and also in the adjacent myocardium; *B* shows the calcium deposited in the kidney.

According to Mulligan,[3] there are four conditions associated with metastatic calcification: (1) bone diseases; (2) chronic renal disease; (3) parathyroid neoplasms, and (4) hypervitaminosis D. He summarized all the available cases, and it is of interest that no infants or children were included in the first and third groups. Baggenstoss and Keith [4] cited other conditions with which metastatic calcification may be associated: congenital weakness or susceptibility to damage of the arterial wall and periarteritis nodosa. Stryker [5] suggested that there may be an

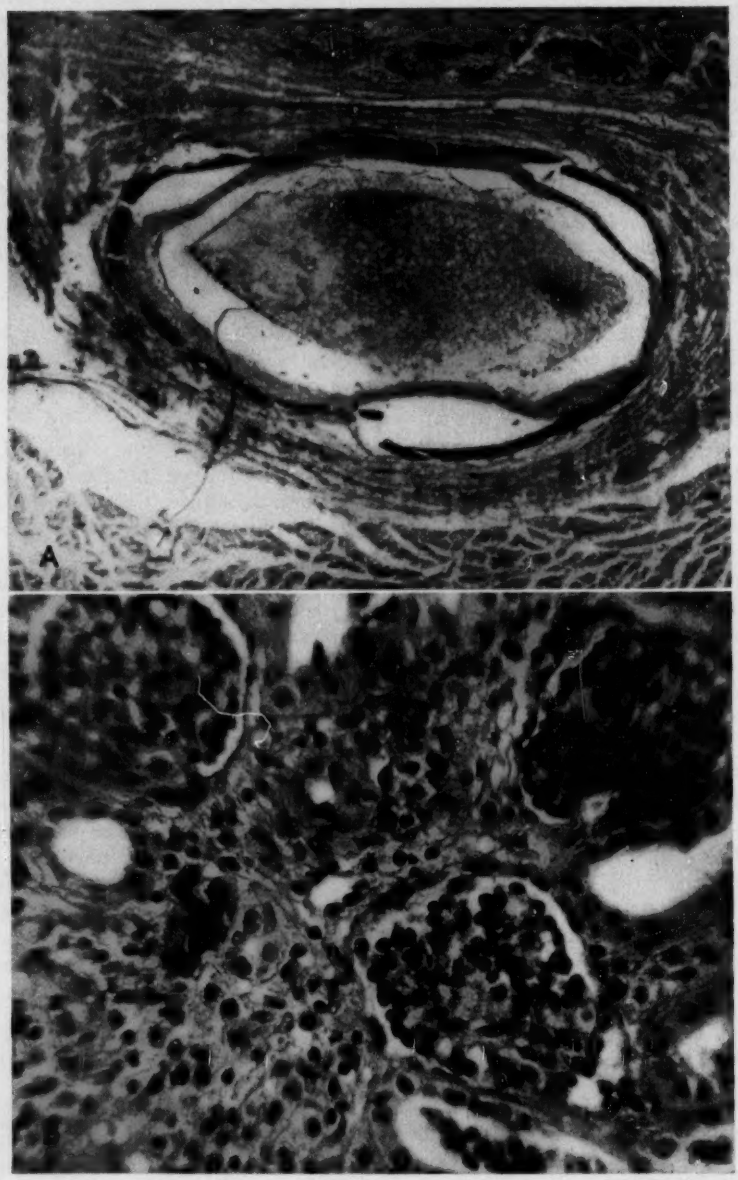
1. Vail, A. S., and Stone, T. P.: Congenital Hypertrophy of the Neck of the Urinary Bladder with Bilateral Hydroureter, Hydronephrosis and Polycystic Kidney, Arch. Path. **43**: 427 (April) 1947.

2. Wells, L. J., and Bell, E. T.: Functioning of the Fetal Kidney as Reflected by Stillborn Infants with Hydroureter and Hydronephrosis, Arch. Path. **42**:274 (Sept.) 1946.

3. Mulligan, R. M.: Metastatic Calcification, Arch. Path. **43**:177 (Feb.) 1947.

4. Baggenstoss, A. H., and Keith, H. L.: Calcification of the Arteries of an Infant, J. Pediat. **18**:95 (Jan.) 1941.

5. Stryker, W. A.: Arterial Calcification in Infancy with Special Reference to the Coronary Arteries, Am. J. Path. **22**:1007 (Sept.) 1946.



A, calcium in the inner lamina of a coronary artery and also in the adjacent myocardium; *B*, calcium deposit in the kidney.

embryonically defective elastic tissue in the arterial wall. While the latter opinions have been expressed in reference only to arterial involvement, metastatic calcification occurs with relatively great frequency in heart muscle, kidney, lung, and various medium-sized arteries. With the exception of the lungs, this is exactly where the calcification occurred in this case.

Many of the authors reported the calcium as present in the media of the arteries, comparable with medial (Mönckeberg's) arteriosclerosis. Stryker, however, showed that the earliest deposits of calcium are in the inner elastic lamina of the intima; as the calcium deposit increases, it encroaches on the media. This early susceptibility of the intima is brought out by the report of Minkowski,[6] who demonstrated that in many newborn infants dying within a few days after birth, there was a thickening of the intima. He associated this finding with infections such as bronchopneumonia. The damaged intima may then have a greater affinity for calcium deposition. Baggenstoss and Keith refer to this as dystrophic calcification of the arteries.

Metastatic calcification has frequently been associated with diseases of the kidney, but practically all the cases have been either chronic inflammatory or congenital in origin. Many of them are cases of renal rickets, in which chronic nephritis has led to a secondary parathyroid hyperplasia. The two cases reported by Andersen and Schlesinger [7] included both congenital anomalies of the kidney and chronic disease. The kidney is unable to excrete phosphate, and the hyperphosphatemia that results leads to a depression of the blood calcium. The parathyroid function increases as a compensatory mechanism. The plasma may become supersaturated with calcium, and it may then be deposited in susceptible areas. It was pointed out by Mulligan that metastatic calcification occurs only when both calcium and phosphate are elevated in the blood. He also indicated that other factors must be present to aid in the deposition of calcium: hyperemia of the region with impaired circulation; a high local carbon dioxide content; an increase in the proteins, and elevation of the plasma phosphatase. The existence of a generalized sepsis, as in our case, was undoubtedly associated with all these factors. However, the infant did not survive long enough to have chronic renal disease, although the multiple abscesses and the urinary tract obstruction unquestionably had some effect on renal function.

Overdose of vitamin D has also been shown to lead to metastatic calcification. Ham and Portuondo [8] produced it with single large doses of vitamin D. It is our belief that the amount of vitamin D administered to this infant was not, in itself, responsible; but it is conceivable that in association with infection and renal disease, it may have been an added, and possibly precipitating, factor.

Increased parathyroid activity was not a likely cause. In the cases of Baggenstoss and Keith,[4] and Field,[9] the parathyroids were not altered. Both the infants

6. Minkowski, W. L.: The Coronary Arteries of Infants, Am. J. M. Sc. **214**:623 (Dec.) 1947.

7. Andersen, D. H., and Schlesinger, E. R.: Renal Hyperparathyroidism with Calcification of the Arteries in Infancy, Am. J. Dis. Child. **63**:102 (Jan.) 1942.

8. Ham, A., and Portuondo, B. C.: Relation of Serum Calcium to Pathological Calcifications of Hypervitaminosis D, Arch. Path. **16**:1 (July) 1933.

9. Field, M. H.: Medial Calcification of Arteries of Infants, Arch. Path. **42**:607 (Dec.) 1946.

died shortly after the onset of illness. Andersen and Schlesinger state that parathyroid involvement is unlikely in very young infants. Furthermore, no changes were demonstrable in the bones.

SUMMARY

An unusual case of metastatic calcification in the newborn, associated with congenital anomalies of the urinary and gastrointestinal tracts, is presented.

The probable cause of the manifestations in the kidney, heart muscle, and medium-sized arteries is a combination of several factors, including renal disease, sepsis, and damage to arterial walls.

TREATMENT OF JUVENILE THYROTOXICOSIS WITH PROPYLTHIOURACIL

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HYPERTHYROIDISM is rare in childhood but occurs occasionally in children from 10 to 15 yr.[1] Girls are affected about seven times oftener than boys.[2] The course of childhood hyperthyroidism may be benign or severe. The disease develops more rapidly in children than in adults, but it is usually milder in form.

The earliest signs of thyrotoxicosis in children are usually emotional disturbances accompanied with motor hyperactivity. The child becomes irritable, excitable, cries easily, and loses or fails to gain weight. The thyroid gland is often visibly as well as palpably enlarged, and bruits may be heard over it. Exophthalmos is noticeable in the majority of these children; the skin is smooth and flushed, and sweating is excessive. Progressive muscular weakness develops as the disease continues. Tachycardia, palpitation, and dyspnea cause discomfort, and cardiac enlargement and insufficiency may actually endanger the child's life. These children are usually tall, and osseous development is often advanced for chronologic age. Sexual maturation is delayed. The basal metabolic rate may be increased from +20 to +70%.

The medical management of hyperthyroidism in children was disappointing until the discovery of thiouracil [3] and propylthiouracil.[4] This statement is verified by the frequency with which children having hyperthyroidism were subjected to thyroidectomy. The influence of the thyroid hormone on growth and metabolism and its interrelation with the other glands of internal secretion are of great significance in the maturing child. Thyroidectomy may result in disturbance in growth and endocrine function in general. During the past six years we have observed two thyroidectomized children who became hypothyroid. Kunstadter and Stein [4] present the subsequent history of four thyroidectomized children, one of whom became

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1. Bram, I.: Thyroid Disease in Youngsters Under Age 16: Comments on Series of 1,200 Cases, Arch. Pediat. **61**:300, 1944. Crile, G., Jr.: Hyperthyroidism in Extremes of Life, Cleveland Clin. Quart. **5**:117, 1938. Williams, L. P., and Janney, F. R.: Thiouracil in Childhood Hyperthyroidism, J. Pediat. **30**:371, 1947.

2. (*a*) McIntosh, C. B.: The Treatment of Hyperthyroidism in Children, J. Pediat. **25**:133, 1944. (*b*) Kennedy, R. L. J.: Surgical and Medical Treatment of Exophthalmic Goiter of Children: Late Results, Am. J. Dis. Child. **60**:671 (Sept.) 1940.

3. Astwood, E. B.: Treatment of Hyperthyroidism with Thiourea and Thiouracil, J. A. M. A. **22**:78 (May 8) 1943.

4. Kunstadter, R. H., and Stein, A. F.: Treatment of Hyperthyroidism in Children, Am. J. Dis. Child. **76**:424 (Oct.) 1948.

a normal adult; one, hypothyroid; another hypothyroid with hypopituitarism, and the fourth, extremely obese and hypothyroid. Kennedy [2b] summarized the results of surgical management of juvenile thyrotoxicosis at the Mayo Clinic and reported similar results. Therefore, conservative medical treatment is desirable if not obligatory.

In 1945 Astwood and VanderLaan [5] observed that appropriate substitutions on the thiouracil molecule conferred a marked increase in its physiologic activity. One of these, 6-N-propylthiouracil, is 10 times as active as thiouracil when tested in rats. It also exerts a more lasting therapeutic effect after a single dose. It has the further therapeutic advantage of a greater activity-toxicity ratio. It is more toxic on a gram per gram weight basis than thiouracil but much less toxic when administered in quantities calculated on the basis of equivalent thyroid effect. In a series of 100 patients treated by Astwood and VanderLaan [6] with propylthiouracil, therapeutic results were excellent, and only occasional mild toxic reactions occurred in 2% of the 450 patients treated. Livingston and Livingston [7] reported a case of agranulocytosis and jaundice due to hepatocellular damage, the first report of liver damage due to propylthiouracil. Eisenmenger and Steele [8] reported a patient first treated with thiouracil and later with propylthiouracil in whom severe leukopenia developed. The basal metabolic rate of this patient fell to approximately normal but subsequently rose in spite of a daily dose of 200 mg. of propylthiouracil, and thyrotoxicosis became manifest. Discontinuance of the drug and thyroidectomy were necessary. Juliar and Harris [9] reported a fatal agranulocytosis resulting from the use of propylthiouracil. Altman [10] reported a case in which he used propylthiouracil and performed two subsequent subtotal thyroidectomies. Despite the fact that propylthiouracil has a favorable effect on thyrotoxicosis, it usually does not cause a decrease in the size of the thyroid gland. In fact, the gland usually enlarges during the first weeks of treatment, probably owing to stimulation by pituitary thyrotropic hormone secreted in excess, as thyroid hormone secretion, a pituitary inhibitor, is reduced by the thiouracil drugs. When the basal metabolic rate has reached a normal level, the daily administration of 0.015 to 0.03 gm. of thyroid U. S. P. will frequently counteract this effect and result in a decrease in the size of the gland and perhaps in exophthalmos. It will be recalled that propylthiouracil does not ordinarily cause a decrease in exophthalmos. It is a clinically accepted fact that a longer course of treatment and large doses of propylthiouracil are required to produce therapeutic effects in patients receiving or who have recently received iodine. The case reports of two girls, 8 yr. and 11 yr., who were treated with propylthiouracil are presented, with résumés of the course of their disease over a period of 18 mo. of observation.

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5. Astwood, E. B., and VanderLaan, W. P.: Thiouracil Derivatives of Greater Activity for the Treatment of Hyperthyroidism, J. Clin. Endocrinol. **5**:424, 1945.

6. Astwood, E. B., and VanderLaan, W. P.: Treatment of Hyperthyroidism with Propylthiouracil, Ann. Int. Med. **25**:813, 1946.

7. Livingston, H. L., and Livingston, S. F.: Agranulocytosis and Hepatocellular Jaundice: Toxic Reactions Following Use of Propylthiouracil, J. A. M. A. **135**:510 (Oct. 18) 1947.

8. Eisenmenger, W. J., and Steele, J. M.: Leukopenia Following Use of Propylthiourea, J. A. M. A. **135**:510 (Oct. 25) 1947.

9. Juliar, B., and Harris, T. L.: Fatal Agranulocytosis Occurring During Propylthiouracil Therapy: Report of a Case, J. A. M. A. **139**:646 (March 5) 1949.

10. Altman, L. D.: Juvenile Thyrotoxicosis Treated with Propylthiouracil and Two Subtotal Thyroidectomies, J. Pediat. **36**:244, 1950.

REPORT OF CASES

CASE 1.—A white girl, 8 yr., was admitted to the pediatric service of the University Hospital on Sept. 24, 1948, with the chief complaint of an enlarged thyroid gland. Her present illness began two years previously, when her mother noted that the child became excitable, irritable, cried easily, perspired freely, and preferred a cool environment. The mother stated that during some six months she had been able to "see the child's heart beating through her chest." A school nurse observed her very rapid pulse. Her neck had been described as "fat." She became progressively worse, with greater excitability, overactivity, irritability, and intolerance of heat. Her hands trembled, and she became progressively more dyspneic. Her past history revealed the usual immunizations and that she had had measles, mumps, and chickenpox. A tonsillectomy had been performed in the spring of 1948 to relieve spells of "croup." Her parents were living and well. A maternal aunt died 20 yr. previously after a thyroidectomy.

Physical Examination.—Initial physical examination revealed a thin, tall, cooperative girl who was in constant physical activity. Her skin was warm, moist, and fine, with good skin turgor. The body temperature was 99.8 F. (37.6 C.); pulse rate, 110; respiration rate, 24; blood pressure, 142/90; height, 58 in. (147.3 cm.), and weight, 58 lb. (26.6 kg). Her hair was fine, glossy, and of normal distribution. Her eyes showed moderate exophthalmos and positive

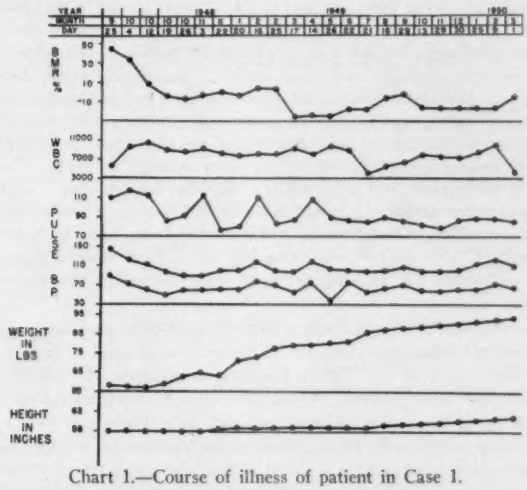

Chart 1.—Course of illness of patient in Case 1.

Graefe, Möbius, and Stellwag's signs. There was widening of the palpebral fissures. The pupils were round and equal and responded to light and accommodation. Funduscopic examination revealed no abnormalities. Her neck was full, and the thyroid gland was moderately enlarged, firm, smooth, and pulsating with a bruit audible over the gland. The chest was clear to percussion and auscultation. The heart was not enlarged; there were no murmurs, and the rate and rhythm were regular; but there was a thrust, the rate was 110, and heart sounds were accentuated. The muscles of the extremities were of poor tonus, but there was no apparent weakness. The reflexes were intact and normal.

Laboratory Examination.—The hemoglobin level was 13.6 gm. per 100 cc.; erythrocyte count 4,700,000; the white cell count, 6,050, with a differential count of 63% polymorphonuclear leukocytes, 36% lymphocytes, and 1% monocytes. The urine was acid, with a specific gravity of 1.022, no glucose or albumin, but a trace of acetone. The blood glucose was 76 mg. per 100 cc.; the blood urea nitrogen was 18 mg. per 100 cc., and the serological test for syphilis gave negative results. The glucose tolerance test showed normal results. The basal metabolic rate was at first + 46% and on the following day was + 52%. Roentgenograms of the chest, long bones, and skull were normal. The electrocardiogram showed only tachycardia.

Course.—On Oct. 4, 1948, the patient was started on a therapeutic regimen, of 75 mg. of propylthiouracil every eight hours. This was reduced to 75 mg. every 12 hr. on October 15 when her basal metabolic rate was found to be +9%. On October 20 this dosage was further reduced to 50 mg. every 12 hr. when her basal metabolic rate was found to be — 5% on the preceding day. On December 1 the dose was again cut, to 25 mg. every eight hours. She has remained on a dosage of 25 mg. every 12 hr. and every eight hours on alternating days since Feb. 2, 1949. The course of her illness is presented graphically in Chart 1.

Regarding her height and weight, it may be noted that at the age of 8 yr. she was in the 50th percentile of weight but completely above normal limits for height according to the Meredith chart. After 18 mo. propylthiouracil therapy, she was in the 90th percentile in weight but still far above normal height. Certain observations were made in addition to those charted. Blood urea nitrogen decreased from 18 mg. per 100 cc. to values approximating 12. Blood sugar was unchanged. Plasma cholesterol was initially 462 mg. per 100 cc. and decreased to values approximating 180. The hematocrit reading decreased from 43.0 to 41.0, accompanied with a fall in hemoglobin from 13.6 to 11.4 gm. without significant change of red cell count. There were a slight decrease in the proportion of polymorphonuclear leukocytes (from 53 to 44%) and an apparent increase (from 1 to 7%) in monocytes in the white cell differential count. Repeated electrocardiograms showed normal results.

CASE 2.—A white girl, 11 yr., was admitted to the pediatric service of the University Hospital on Sept. 22, 1948, with the chief complaints of nervousness and fatigue. Her present illness began three years previously, when it was noted that the quality of her school work began to drop. She was nervous, excitable, and cried easily. A voracious appetite developed, but she failed to gain weight. During the previous two years her eyes had become prominent. She drank excessive amounts of water, was always too warm, and preferred cold weather. In 1947 her symptoms became more pronounced; dyspnea developed and became progressively worse. During the winter of 1947 and the spring of 1948 she had many attacks of "croup." The mother stated that during the previous year "you could see and hear her heart beating." One week prior to admission she had another attack of "croup," with marked dyspnea. Three years prior to admission she had had a tonsillectomy performed to ease her breathing. She had had the usual immunizations and measles. Her mother was living and well. Her father died of typhoid 10 yr. previously. One stepbrother and one stepsister were living and well. There was no family history of hyperthyroidism.

Physical Examination.—The patient was a thin, tall, well developed, highly apprehensive, and excited girl whose skin was warm, dry, fine in texture, but of good turgor. Her weight was 80 lb. (36 kg.), her height 61 in. (155 cm.). Body temperature was 99.2 F., pulse rate 130, respiration rate 22, and blood pressure 140/78. Her eyes showed bilateral exophthalmos, wide palpebral fissures, no lid lag, and a positive Stellwag's sign. The pupils were round and equal and responded to light and accommodation. Funduscopic examination revealed no abnormalities. Her neck was full; the thyroid gland was palpable, firm, and not nodular. No bruit was elicited. The lung fields were clear, and the heart appeared moderately enlarged, although the latter was not confirmed by roentgenogram. The point of maximal impulse was located in the fifth intercostal space at the midclavicular line. There was a thrust, the heart sounds were harsh and accentuated, the rate was 130, the rhythm was regular, and there were no murmurs. Breast development was minimal. Her extremities were normal, and her reflexes were intact and normal.

Laboratory Examination.—Blood urea nitrogen was 23 mg. per 100 cc.; blood glucose, 60 mg. per 100 cc.; chlorides, 96 mEq. per liter; cholesterol, 191 mg. per 100 cc. The hemogram revealed the following: hemoglobin, 13.0 gm. per 100 cc.; erythrocyte count, 6,540,000; white cell count, 8,900, with a differential cell count of 63% polymorphonuclear leukocytes, 35% lymphocytes, and 2% monocytes. Electrocardiography gave normal results, but a tachycardia of 156 was exhibited. Roentgenograms of the chest and long bones showed a normal chest and a normal bone age. The cardiothoracic measurement was 9.6 to 26 cm. A roentgenogram of the skull showed a normal sella turcica. The urine specific gravity was 1.019. Tests for acid, albumin, glucose, and acetone and microscopic examinations gave normal results. Basal metabolic rate was +69%, and the glucose tolerance test gave normal results.

Course.—The patient was started on propylthiouracil therapy, 75 mg. every eight hours, on October 5 and was continued on this dosage for one week. On October 12 the dosage was cut to 75 mg. every 12 hr., and she was continued on this schedule until November 3, when her basal metabolic rate was 0. On November 3 she was started on 50 mg. every 12 hr., and she was continued on this schedule until June 24, when the dosage was changed to 25 mg. every 12 hr. On October 18 the dosage was stabilized at 25 mg. every 12 hr. and every eight hours on alternate days. The clinical course of this patient is shown graphically in Chart 2.

Regarding her weight and height, it is noted that when started on propylthiouracil at 11 yr., she was of normal weight and 4 in. (10 cm.) taller than the level for the 50th percentile for her age on the Meredith weight-height chart and that at 12½ she was in the 75th percentile for weight and the 90th percentile for height. In addition to the charted data, certain other observations were made. Blood urea nitrogen decreased from an initial value of 23 mg. per 100 cc. to 16. Blood sugar rose from an initial 60 mg. per 100 cc. to values approximating 100. Plasma cholesterol rose from 191 mg. per 100 cc. to values near 240. There was no significant change

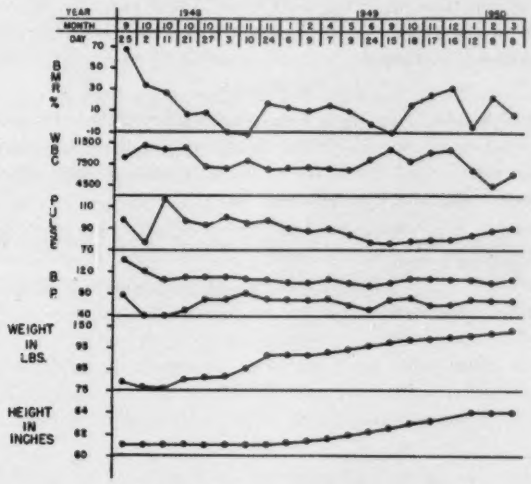

Chart 2.—Course of illness of patient in Case 2.

in hematocrit reading or hemoglobin level, but there was a fall in the red blood cell count from 6,500,000 to values around 5,000,000. The percentage of polymorphonuclear leukocytes did not change appreciably, although a rise in monocytes, from an initial 2% to a final 7%, occurred. (This is similar to Case 1.) Electrocardiograms showed normal results.

COMMENT

It is noteworthy that although the size of the thyroid gland has not decreased, the exophthalmos is apparently less in both girls. Both are less emotionally disturbed and are doing well in school. Neither shows more motor activity than is to be expected in girls of their ages. Pulse, blood pressure, appetite, dyspnea, and tremors have been controlled. Both girls show normal physical development for their respective ages. The results of repeated electrocardiographic, bone-age, and blood studies have been within normal limits. Although both girls are tall compared with the majority of their peers in age, their weights are normal for their body statures.

It is believed that these two patients demonstrate that it is possible to control the manifestations of hyperthyroidism in children maintained on an adequate dosage of propylthiouracil. On two occasions during the course of treatment the first patient has shown urticaria of the hands, which has been controlled with diphenhydramine (benadryl®) hydrochloride. Serum cholesterol levels appear to be an unreliable laboratory index of prognosis, as is frequently noted in hyperthyroidism.[11] No agranulocytosis or alarming leukopenia has developed.

Progressive and excessive gain in height is unexplained but may be due to decreased thyroid hormone inhibition of the pituitary gland, allowing slight overactivity of that organ, manifested by excessive growth in height. There are no other apparent signs or symptoms of hyperpituitarism in these girls. Thyroid hormone has not been used in an attempt to ameliorate the excessive increase in height. It is interesting to note that neither girl was relieved of her "croup" by tonsillectomy. No evidence of hypothyroidism has been noted. These girls may require surgery at any time, and in the experience of Jackson,[12] they are better surgical risks than before treatment was instituted.

SUMMARY

Two girls, 8 yr. and 11 yr., have been treated successfully with propylthiouracil, each for a period of 18 mo. The initial dosage of the drug was decreased as the basal metabolic rate neared 0, and the final maintenance dosage was 25 mg. every 12 hr. and every eight hours on alternate days.

11. Peters, J. P., and Man, E. B.: The Significance of Serum Cholesterol in Thyroid Disease, J. Clin. Invest. **29**:1, 1950.

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Progress in Pediatrics

PRIMARY BRONCHOGENIC CARCINOMA OF THE LUNG IN CHILDREN

Review of the Literature; Report of a Case

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I. INCIDENCE OF CARCINOMA OF THE LUNG IN CHILDREN

CARCINOMA of the lung in children is extremely rare. Dargeon [1] states that between 1930 and 1935 in the Memorial Hospital, of New York City, only 218 cases of cancer were diagnosed in children. None of these was primary cancer of the lung. In his compiled statistics of six other authors, he notes only five cases of carcinoma of the lung among 1,557 cancer cases. In 1946 Dick and Miller [2] surveyed the literature and found, besides their own, only seven authentic cases of primary carcinoma of the lung among children. A review of the literature by us has revealed only 15 cases among children 14 yr. of age or younger (Table).

In 1928 Schwyter [3] called attention to the relation between malformation and tumor of the lung. Two of his eight cases were of children; one had carcinoma of the lung superimposed on congenital atelectasis; the other had a combination of carcinoma and congenital cysts. In the 15 cases reviewed, we found only one case of congenital malformation of the lung [4] in addition to the two published by Schwyter.[3]

Ochsner and co-workers [5] in 1945 reviewed 4,307 cases of bronchogenic carcinoma from the literature. They found that, whereas 85% of the patients were between 40 and 70 yr. of age, only 0.16% of the cases occurred in the first decade and 0.7% in the second decade. In adults one sees 10 cases of primary bronchogenic carcinoma for each case of primary sarcoma of the lung.[6] In children this relationship is reversed.[7]

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1. Dargeon, H. W.: Cancer in Childhood and a Discussion of Certain Benign Tumors, St. Louis, C. V. Mosby Company, 1940, p. 26.

2. Dick, A., and Miller, H.: Brit. M. J. **1**:387, 1946.

3. Schwyter, M.: Frankfurt. Ztschr. Path. **36**:146, 1928.

4. Sommer, A. W.: Minnesota Med. **17**:415, 1934.

5. Ochsner, A.; Dixon, J. L., and DeBakey, M.: Clinics **3**:1187, 1945.

6. Round Table Discussion on Tumors, Benign and Malignant, J. Pediat. **30**:716, 1947.

7. Ochsner, A., in Brennemann's Practice of Pediatrics, edited by I. McQuarrie, Hagerstown, Md., W. F. Prior Company, Inc., 1948, Vol. 2, Chap. 54, p. 63.

An article in the January, 1949, issue of the *Statistical Bulletin of the Metropolitan Life Insurance Company,* New York,[8] indicates that malignant growths in children are on the increase. In 1948 Dargeon[9] stated that during the years 1942 to 1944 cancer and other neoplastic diseases were the highest cause of death among children in New York City.

II. INCREASING FREQUENCY OF LUNG CARCINOMA IN ADULTS

Among adults in recent years, an increase in carcinoma of the lung has been noted.[10] The following two graphs by the American Cancer Society[11] illustrate

Histologically Proved Cases of Primary Carcinoma of the Lung in Children Fourteen Years Old or Less

Case No.	Author	Sex	Age, Yr.	Side Involved	Initial Symptoms	Histological Diagnosis	Comment
1	Curran, W.: Lancet **2**: 258, 1880...	M	10	L	Pain and swelling in chest wall after trauma	Carcinoma	Meager histological description
2	Schwyter,[2] 1928.....	F	1½	L	Pallor and anemia	Adenocarcinoma with congenital atelectasis	First case of congenital malformation
3	Schwyter,[2] 1928.....	F	5 mo.	R	Hemoptysis, pallor, and dyspnea	Squamous-cell carcinoma with cystic lung	Second case of congenital malformation
4	Hirsch, E. F., and Ryerson, E. W.: Arch. Surg. **16**: 1 (Jan., pt. 1) 1928	M	5	R	Pain and lameness in right leg	Epithelioid cancer	Metastases observed first
5	Simpson, S. L.: Quart. J. Med. **22**: 413, 1928-1929	M	13	R	Marasmus; lumps on chest wall	Carcinoma	Metastases observed first
6	Beardsley, J. M.: Canad. M. A. J. **29**: 257, 1933	F	1½	L	Pain and tumor on spine	Adenocarcinoma	Metastases observed first
7	Kilduffe, R. A., and Solasin, S. L.: J. M. Soc. New Jersey	M	14	R	Dyspnea, cough, and pain in chest	Epithelioid carcinoma	.....
8	Gould, L. K.: J. Indiana M. A. **29**: 332, 1934	M	10	R	Spasmodic cough, fever, and loss of weight	Carcinoma, grade III	.....
9	Sommer,[4] 1934.....	F	7	R	Dyspnea, headaches, and vomiting	Adenocarcinoma in cystic lung	Third case of congenital malformation with cancer
10	Cardelle, G., and others: Arch. Med. inf. **5**: 351, 1936	M	11	L	Signs of pleural effusion	Oat-cell carcinoma	.....
11	Wasch, M. G., and others: J. Pediat. **17**: 521, 1940	M	11	R	Fever, cough, and pain in chest	Adenocarcinoma	7-yr. survival
12	Hauser, H.: Radiology **39**: 33, 1942	F	1 yr., 5 mo.	L	Cough and dyspnea	Small-cell carcinoma	.....
13	Field, C. E., and Quilliam, J. P.: Brit. M. J. **1**:691, 1943	F	4½	R	Cough, dyspnea, cyanosis, and signs of pleural effusion	Anaplastic carcinoma	.....
14	Jones, R., and others: Brit. J. Tubere. **37**: 113, 1943	M	13	R	Asthma	Epithelioid carcinoma	.....
15	Dick and Miller,[2] 1946.....	F	9	R	Pain in left femur	Anaplastic carcinoma	Metastases observed first
16	Cayley and others, 1951.....	F	13	L	Pain in left shoulder	Bronchogenic carcinoma, undifferentiated-cell type	Unusual metastatic pattern; rapid course

the increase in the death rate of carcinoma for the United States as a whole and the increase of cancer of the respiratory tract among white males. Next to cancer of the stomach cancer of the lung is the most frequent cause of death among all male adults suffering from carcinoma. A similar increase might be anticipated among children. Unless one is aware of this possibility, the chance of early diagnosis will

8. Cancer Among Children, Statist. Bull. Metrop. Life Insur. Co. **30**:5 (Jan.) 1949.

9. Dargeon, H. W.: Cancer in Children from Birth to 14 Years of Age, J. A. M. A. **136**:459 (Feb. 14) 1948.

10. (*a*) Dorn, H. F.: Pub. Health Rep. **58**:1265, 1943. (*b*) Harnett, W. L.: Post Grad. M. J. **19**:33, 1943, (*c*) Wegelin, C.: Schweiz. med. Wchnschr. **72**:1053, 1942. (*d*) Ochsner, A.; DeBakey, M. E., and Dixon, J. L.: Postgrad. Med. **3**:427, 1948.

11. Statistics on Cancer, prepared by the Statistical Research Section, Medical and Scientific Dept., American Cancer Society., June, 1949, pp. 5 and 19.

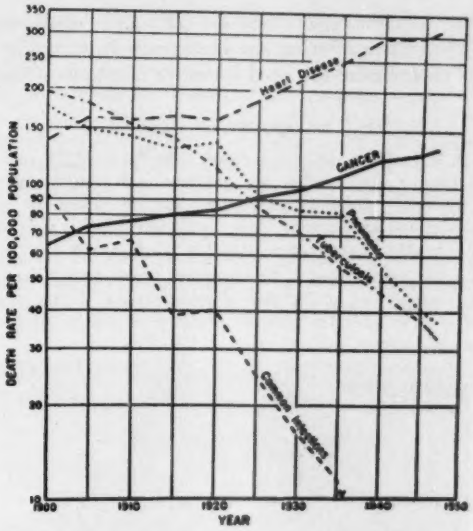

Fig. 1.—Death rates of cancer and other diseases in the United States, 1900 to 1947. (Figure 2 from "Statistics on Cancer," American Cancer Society, June, 1949, p. 5.)

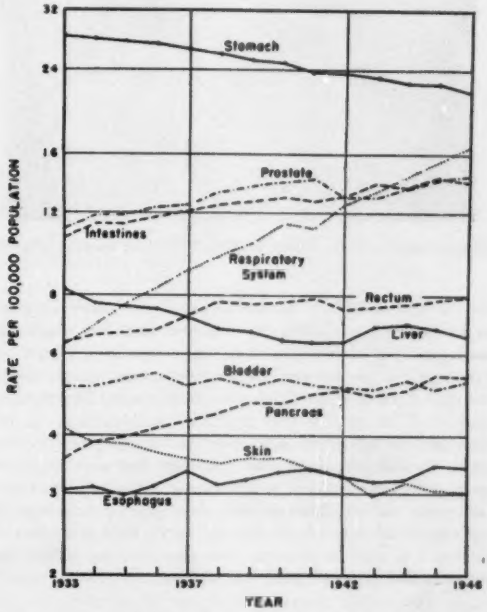

Fig. 2.—Death rates of cancer by site in white men in the United States, 1933 to 1946. Rates are standardized for age on the 1940 United States population. (Figure 10 from "Statistics on Cancer," American Cancer Society, June, 1949, p. 19.)

be missed, together with the opportunity for early and radical surgical treatment, which is the only procedure offering any therapeutic hope.[12] The purpose of this presentation is to reemphasize the need for early diagnosis of cancer of the lung among children.

III. REPORT OF CASE

Past History.—D. T., a 13-yr.-old girl, weighed 7 lb. 7 oz. (3,374 gm.) at birth and was breast-fed for two months. The feeding and developmental history was normal. She was immunized against diphtheria, whooping cough, and smallpox before she entered school. She had chickenpox, measles, and scarlet fever. Her tonsils and adenoids were removed at 7 yr. of age because of frequent colds. Menstruation started at 12 yr. of age.

Family History.—Her mother died of breast cancer which metastasized to the lungs. The father has multiple lipomas. One sibling died of convulsions at 27 mo. of age. One sister is living and well and is 25 yr. old. The paternal grandmother died of diabetes; one great aunt has asthma; one aunt has eczema.

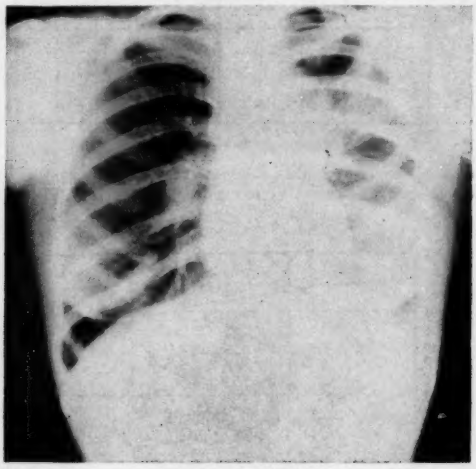

Fig. 3.—Roentgenogram of D. T., taken July 1, 1948, two months after the first symptoms were noticed.

Present Illness.—On May 9, 1948, at the age of 13 yr., the patient complained of pain in the left shoulder. Her temperature was 100.8 F. The local physician diagnosed the condition as "grippe," even though no signs of infection of the upper respiratory tract were present. After she was in bed 14 days, pain developed over the left epigastrium, the temperature rose to 101 F., and the patient manifested mild, nonproductive, hacking cough. The temperature remained at about 101 F. for one week, in spite of oral penicillin administration. At this point, the child went back to school but did not seem well. She had no appetite, lost her vigor, and also started to lose weight. Finally, on July 1, after the cough had persisted for about two months, a chest roentgenogram (Fig. 3) was taken which showed a shadow, 3 to 4 cm. in diameter, over the left paratracheal region and a smaller and less dense one over the right paratracheal zone; general haziness was present over the entire left hemithorax, without shifting of the mediastinum, and a small hazy lesion, 1 to 2 cm. in diameter, was seen over the base of the right lung. The diagnosis of pleurisy was made, yet the child was permitted to go on a trip. When she returned

12. Ochsner, A.; DeBakey, M. E.; Dunlap, C. E., and Richman, I. M.: J. Thoracic Surg. **17**:573, 1948. Hollingworth, R. K.: Ann. Int. Med. **26**:377, 1947. Ochsner, A.; DeBakey, M. E., and Richman, I. M.: South. Surgeon **14**:595, 1948.

four weeks later, on July 29, the chest roentgenogram (Fig. 4) was repeated and showed the following findings: A massive shadow was present over the lower two-thirds of the left lung field, with marked shift of the mediastinum to the left and narrowed intercostal spaces on the left. The upper third of the left lung field showed a less intense shadow than the lower two-thirds, with hyperaeration-like cavities in the left infraclavicular region. The right tracheobronchial shadow was not visualized as well as in the first film. The shadow over the lower lobe of the right lung showed some increase. The next roentgenogram, taken on Aug. 9, 1948, in the anteroposterior and lateral position with normal and Bucky penetrations, showed further progress of all the features seen 17 days previously. Fluoroscopy revealed no motion of the left leaflet of the diaphragm. Meanwhile, the slight cough, apathy, and anorexia persisted. The patient lost 10 lb. (4.5 kg.) in three months. Tests done with two concentrations of tuberculin gave negative reactions. As no definite diagnosis had been made by the local physician, the child was brought to the city for consultation with one of us (C. K. C.), three months after the initial symptoms were noticed by the parents.

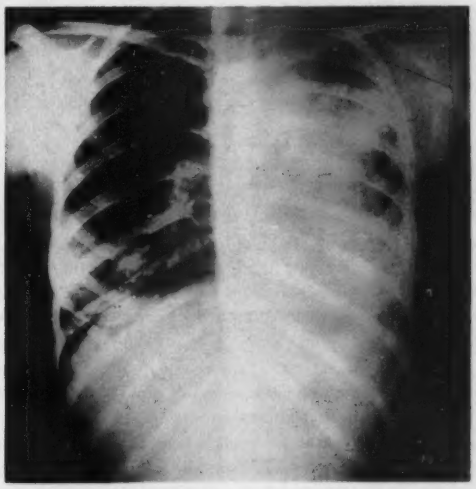

Fig. 4.—Roentgenogram of D. T., taken July 29, 1948, four weeks after Figure 3 and two and three-fourths months after first symptoms.

Results of Physical Examination.—The patient was a tall, slim, pale, apathetic adolescent girl, weighing 44 kg. She was 159 cm. tall, which represented a height two years above the average, and nutrition was 14% below normal. Her temperature was 100.8 F. while in the office and a few tenths less at home. There was no obvious dyspnea at rest, but she became dyspneic on slight exertion. The left side of the chest was somewhate retracted, with diminished expansion on inspiration.

The heart and trachea were displaced to the left side. The right lung was clear to percussion and auscultation. The left lung showed bronchial breathing, with occasional medium, distant rales over the anterior upper lung field. Over the same area, the lung was resonant to percussion and the tactile and vocal fremitus was increased. The lower lung field anteriorly and the entire posterior field showed dulness, and the breath sounds were absent. The tactile and vocal fremitus was decreased to absent in the same areas.

The heart sounds were normal, but the rate was rapid. The child looked pale and worn, and the blood showed hemoconcentration (hemoglobin measured 130% [18.9 gm.]; repeated tests showed 110 to 118% [16 to 17.1 gm.]). The blood pressure was 130/60 in a recumbent position. On abdominal examination, superficial reflexes and nodes were found to be normal. Both breasts contained numerous pea-sized to peanut-sized hard masses embedded in the mammary tissues.

Results of Laboratory Examinations and Bronchoscopy.—An intradermal tuberculin test done with 1.0 mg. of old tuberculin showed slight erythema and induration, 25 mm. in diameter. The Schick reaction was negative. The urine showed a 3 + reaction for albumin, a negative reaction for sugar, and 1 to 8 white blood cells per high-power field in the centrifuged specimen. A clean but not catheterized day-and-night specimen showed no albumin during the night, a 1 + reaction for albumin during the day; microscopic study revealed no abnormality in either specimen. The Wassermann reaction was negative. The erythrocyte-sedimentation rate, with the Westergren macromethod, was 20 mm. in one-half hour and 33 mm. in one hour. The sputum was negative for tubercle bacilli on smear and on concentrate. Dr. Edward Rockey performed a pulmonary lavage with direct pulmonary catheterization and failed again to obtain tubercle bacilli on direct smear and on concentrate. Cytological examination was not done. Bronchoscopy was performed a few days later and showed both intrinsic and extrinsic obstruction of the left main bronchus. Histological specimens taken from lesions in the trachea, left main bronchus, and bifurcation were reported as showing bronchogenic carcinoma.

Course.—The patient was considered unsuitable for pneumonectomy. However, further hospital work-up seemed desirable. A biopsy specimen was taken from one of the tumor masses palpated in the breasts, and a brown nevus was removed from the back. The histological examination of the breast lesion showed an epithelioid carcinoma, grade III. The histological features of this specimen were similar to those of the one removed from the left main bronchus at bronchoscopy. It was thought by some observers that the identical nature and maturity of the histological specimens from the bronchus and the breast tumor meant that both represented metastases from some primary carcinoma elsewhere in the body. However, no evidence could be found for this contention. All organs, except the lungs and breasts, seemed to be normal on clinical examination. The growth removed from the back was reported to be a benign nevus pigmentosus.

The blood count on Aug. 20 and 23 showed a hemoglobin concentration of 108 to 103% (15.5 and 14.8 gm.). The white-blood-cell counts varied between 9,100 and 7,800; the polymorphonuclear cells were 74 to 76%; eosinophils numbered 1 and 2%, and lymphocytes, 23 and 22%. There were 2% metamyelocytes in the specimen taken on Aug. 20; none in the second specimen.

The patient's temperature was normal while she was in the hospital.

The chest roentgenogram taken on Sept. 21 showed the following: "The patchy density over the right base increased since the examination a month ago. It now occupies one-third of the right chest. The left lung showed slight interval progression, possibly fluid also."

While in the hospital, the child started to complain of pain in the right knee. A roentgenogram of that region showed a bone lesion occupying the upper end of the tibia, measuring about 3 cm. in diameter. The roentgenologist considered this a metastatic malignant bone tumor (Fig. 5).

A few days later the patient first complained of pain in the left shoulder, which probably also represented metastases. About the same time she had pain on walking in the left foot. A visible tumor occurred about that time over the third metatarsal bone, and signs of pathological fracture developed.

The patient was seen again in the office on Sept. 11. At that time her weight was 82½ lb. (37.4 kg.), an additional loss of 14½ lb. (6.6 kg.) in one month. She looked pale and cachectic. Her temperature was 99.6 F. Both breasts were tightly filled with hard nodules. She had shotty cervical and axillary glands. Her inguinal glands were not palpable. Her abdomen was full, considering her state of emaciation. However, no specific masses could be palpated. The chest signs were the same as on the first examination on Aug. 8. Her blood pressure was 115/70. At this time she stated that for several days she had been unable to swallow solid food. Therefore, x-ray treatment was instituted. After the first x-ray treatment she was able to take solid food again without nausea or vomiting. Still the child continued to fail rapidly, and on Oct. 18 she was admitted to the Fifth Avenue Hospital. A chest roentgenogram at this time showed further progression (Fig. 6). Therapy with neither folic-acid antagonists nor nitrogen mustard (methyl-*bis* or *tris* [2-chloroethyl] amine hydrochloride) changed the course of the disease, and the patient died on the fifth hospital day, Oct. 22, five and one-half months after the first symptoms were noticed.

Fig. 5.—Roentgenogram of right knee of D. T., taken Sept. 21, 1948, four and one-half months after first symptoms.

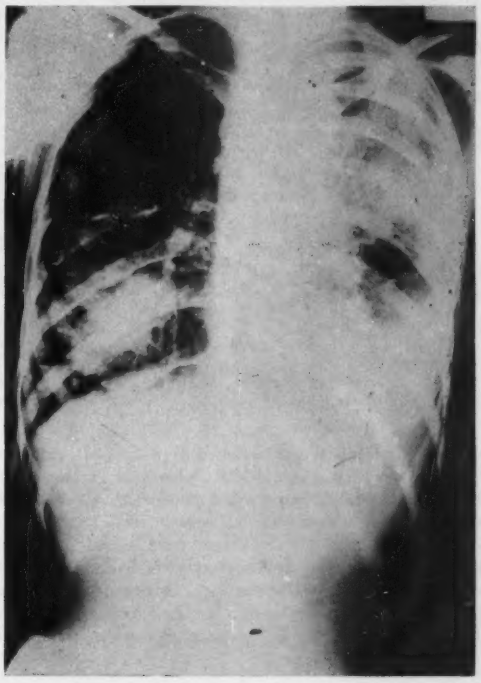

Fig. 6.—Roentgenogram of D. T., taken Oct. 19, 1948, three months after Figure 3, five months after first symptoms, and three days prior to death.

Final Clinical Diagnosis.—The final clinical diagnosis was primary bronchogenic undifferentiated-cell carcinoma, grade III, and metastases to bones, breasts, and the tracheobronchial nodes of the contralateral lung.

Postmortem Findings.—The autopsy was done through a 5-in. (12.7 cm.) midrectus incision in the upper abdomen.

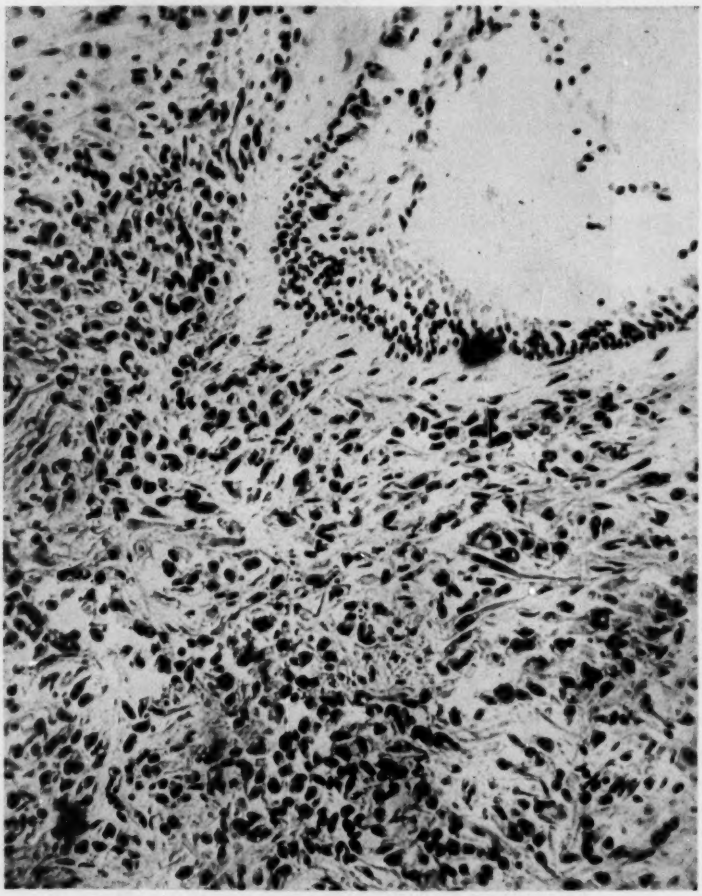

Fig. 7.—Photomicrograph of left lung tissue.

External Appearance: Both breasts were prominent and almost equal in size. On palpation hard, nodular tumor masses were felt which appeared to replace the breast tissue in both glands. In the upper outer quadrant of the left breast was a diagonal healed scar 1.5 in. (3.8 cm.) long. No axillary, cervical, or inguinal masses were palpable.

Thoracic Organs: The domes of the diaphragm were incised from below. No fluid was noted in the pleural spaces. The pleural surface of the left dome was replaced by hard, white, nodular tumor tissue. The entire left lung was replaced by the same type of tumor tissue, which involved the parietal pleura. The tumor also was adherent to the left chest wall in the region of the left breast. The right lung lay free in the pleural cavity. Its surface was studded by firm

tumor nodules. The lower right lobe was incised, and its substance was seen to be partially replaced by gray-white, hard, nodular tissue. The same type of tumor tissue was removed from both breasts through the pleural surfaces. The heart lay free in the pericardial sac, which was not penetrated by malignant tissue. The anterior mediastinum (by palpation) was fixed and appeared to be replaced by tumor tissue. The thymus was not visualized but did not appear to be replaced by tumor growth. No tumor was palpated at the root of the neck.

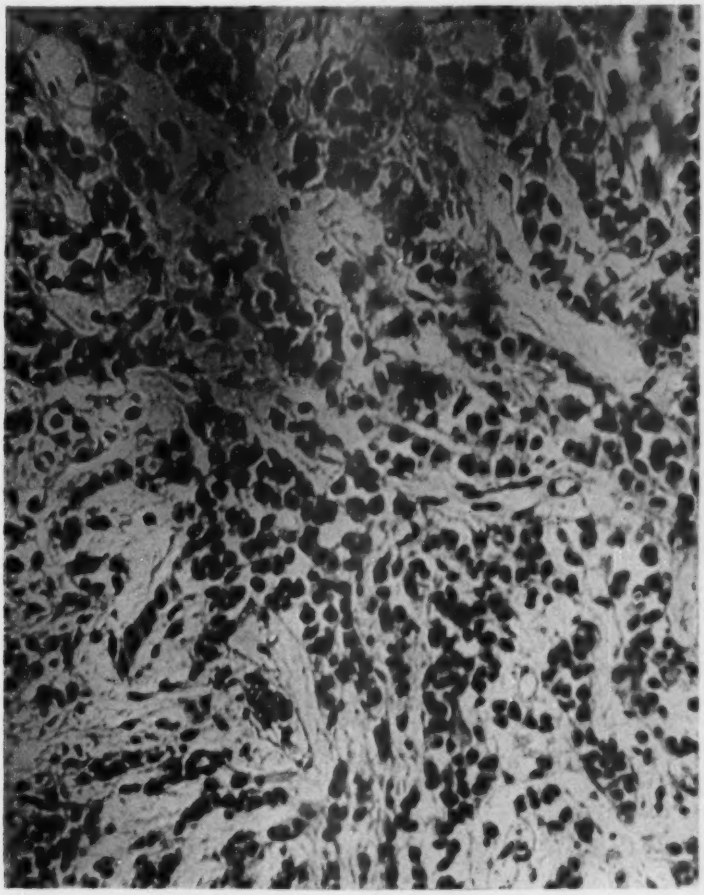

Fig. 8.—Photomicrograph of right lung tissue.

Extrathoracic Organs: The gastrointestinal and biliary tracts, liver, pancreas, genitals, retroperitoneum, adrenal glands, kidneys, spleen, and lumbar lymph nodes did not show any pathological changes. The cranial cavity was not opened. The musculoskeletal system was not examined.

Anatomic Diagnosis: The lungs showed bronchogenic carcinoma in the left, with metastases to the posterior mediastinum, right lung, and breasts.

Cause of Death: The cause of death was given as bronchogenic carcinoma of the left lung, with metastases to the posterior mediastinum and right lung.

Microscopic Examination: Lungs: The sections of the left lung showed almost complete replacement by tumor cells, except for two small bronchi. No alveoli were identified, and the tumor cells were embedded in moderately dense fibrous tissue, which appeared to be a reaction to the tumor. No definite primary site of origin could be found in the bronchus. The discrete tumor cells around the fibrous tissue were large. The size varied from a moderate-sized round cell to a large giant tumor cell. Many of the latter were multinucleated, with the nuclei partially

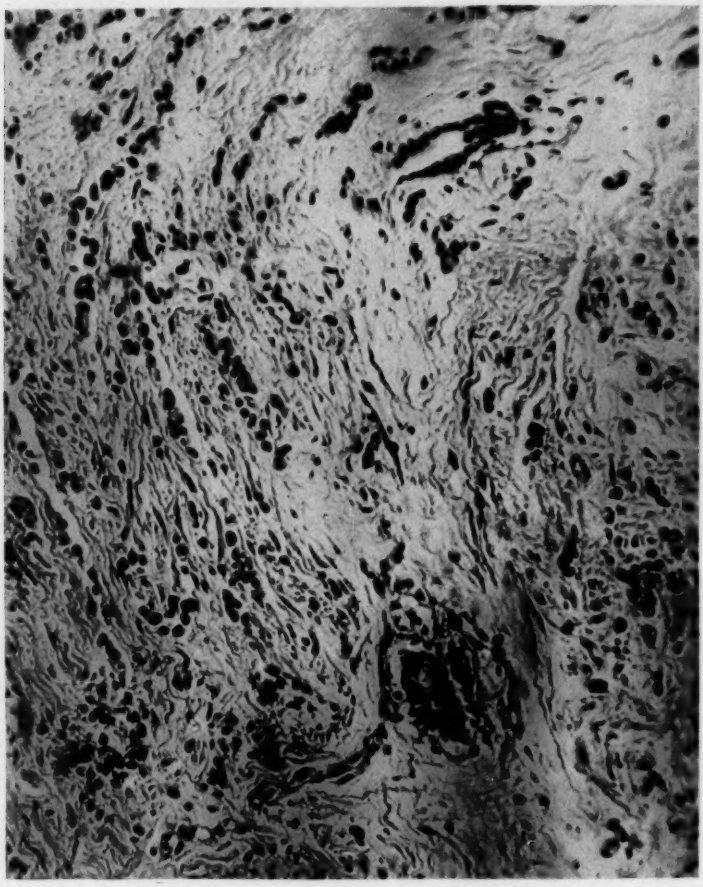

Fig. 9.—Photomicrograph of tissue of right breast.

or completely rimming the periphery of the cell. The cytoplasm of the latter and of most of the other cells was prominent and eosinophilic. The nuclei were irregular in shape and size and hyperchromatic. Only occasional mitoses were seen. No keratinization was noted. Tumor emboli were seen in small blood vessels and capillaries. The section of the right lung showed the metastases to be of the same character as in the left lung.

Other organs: The left intercostal muscles, the left breast, and the left leaflet of the diaphragm, and the right breast, were invaded by islands and strands of the same tumor cells noted in the lung. The spleen, adrenal glands, and liver showed no metastases.

Mesenteric lymph nodes: No metastases were noted in these hyperplastic nodes. In marginal sinuses a few cells with atypical nuclei were observed. These were probably not tumor cells.

Results of biopsies: The biopsy specimen of the bronchus showed cords of cells with dark-staining nuclei and eosinophilic cytoplasm. These invaded the submucosa. Occasional giant tumor cells were noted. The biopsy specimen of the breast showed dense clusters of malignant epithelial cells. The cytoplasm of these cells was vacuolated, unlike the cytoplasm of those seen

Fig. 10.—Photomicrograph of intercostal muscle.

in the bronchus. However, at the very edge of the section were dense cords of cells as seen in the bronchus. The latter were similar to the cells seen in the biopsy specimens.

Summary of Pathological Findings: It was seen that this tumor was confined to the thorax. No tumor was observed below the level of the diaphragm in the abdomen, and none could be detected in the neck. This histologic pattern was not that which is seen usually in the malignant tumors of the thymus but conformed quite characteristically to the undifferentiated large-cell bronchogenic carcinoma. The involvement of the lungs and of the mediastinum by the tumor was sufficient to cause death. Clinically, bone metastases were detected by roentgenogram. The breasts

were involved by direct extension through the pleura and intercostal wall and by lymphatic extensions from the left to the right breast. No evidence of neuroblastoma was seen. The chief differential diagnostic difficulty histologically was with breast carcinoma. However, the pattern was characteristic of bronchogenic carcinoma.

Final Pathological Diagnosis: The final pathological diagnosis was as follows: The primary lesion was primary bronchogenic carcinoma, undifferentiated-cell type, in the left lung. The secondary lesions were metastases to (*a*) right lung, (*b*) posterior mediastinum, (*c*) left leaflet of the diaphragm, (*d*) left thoracic pleura, (*e*) intercostal muscles, (*f*) breasts, and (*g*) bones (as shown on antemortem roentgenogram).

General Pathological Observations: General pathological observations consisted of early chronic passive congestion of the liver; chronic passive congestion of the spleen, and chronic lymphadenitis involving the mesenteric lymph nodes.

COMMENT

The case described represents the 16th proved instance of primary bronchogenic carcinoma in children to be reported in the medical literature. The course in this child was unusually rapid. Two months after the first symptom, there was roentgenographic evidence of metastases to the contralateral lung, which removed the case from the category of resectable lung carcinomas.

The metastases did not follow the usual pattern. One of the largest sites of spread occurred by extension through the pleura and the intercostal muscles to the homolateral breast and probably through the lymphatics from the left to the right breast. We could find only one similar metastatic pattern in the medical literature; this was mentioned among the 117 autopsied cases of Wegelin.[10e]

V. SUMMARY AND CONCLUSIONS

The 16th proved case of primary carcinoma of the lung in a child is described.

Our patient had a very rapid course and unusual metastatic pattern.

A plea is made for more cancer education among both physicians and laymen, so that diagnosis of these rare and prognostically serious cases, not only in adults but also among children, can be made earlier.

983 Park Ave., New York 28 (Dr. Cayley).

Abstracts from Current Literature

Metabolism; Infant Feeding; Milk and Other Foods

MALIGNANT MALNUTRITION. FRANK WALT and LUCY WILLS, South African M. J. **24**:920 (Nov. 4) 1950.

The syndrome of kwashiorkor, or malignant malnutrition, is described, and the results of studies on 36 children are summarized. The essential characteristics are anorexia, wasting, fatty infiltration of the liver, and edema associated with hypoproteinemia at some stage of the disease. The disease is one of young infants and children and apparently is related to a diet low in calories and protein and consisting chiefly of carbohydrates. In all cases serum protein was reduced, owing to a reduction in the albumin fraction. Treatment with a very high protein diet caused quick return to normal in the blood and corresponding clinical improvement.

McGUIGAN, Evanston, Ill.

Vitamins; Avitaminoses

CHRONIC POISONING DUE TO EXCESS OF VITAMIN A. JOHN CAFFEY, Am. J. Roentgenol. **65**: 12 (Feb.) 1951.

Seven cases of poisoning due to the ingestion of excessive amounts of vitamin A are presented. These patients received an estimated daily dose of between 75,000 and 500,000 units of vitamin A. There is a long latent period of several months between the start of excessive dosage and the appearance of clinical signs. The clinical signs and symptoms include pruritus, anorexia, tender swellings, hyperirritability, and limitation of motion. The swellings were deep and apparently attached to the bone.

The roentgenograms demonstrate sclerotic cortical hyperostoses, particularly of the ulnas and metatarsals, with cortical hyperostoses present under all the areas of swelling. The patients recover rapidly and completely with stoppage of overdosage. The disease can be fairly easily differentiated from infantile cortical hyperostosis.

HODGSON, Rochester, Minn.

Hygiene; Growth and Nutrition; Public Health

BODY SIZE NORMS FOR CHILDREN FOUR TO EIGHT YEARS OF AGE. HOWARD V. MEREDITH, J. Pediat. **37**:183 (Aug.) 1950.

The subjects from whom the norms of this paper were obtained were Iowa children between the ages of 4 and 8 yr. Their families were of the professional or managerial socioeconomic groups. The study was made from 1940 to 1949. The measures recorded are chest girth, abdomen girth, arm girth, leg girth, shoulder width, hip width, stem length, upper limb length, and lower limb length. The data are separated according to age, sex, and body dimensions. Each group of measurements is arranged in order and the 10th, 30th, 70th, and 90th percentiles determined. The 30th and 70th percentiles are used as the limiting values for "average." The 10th percentile is the lower limit of the "moderately small" category, and the 90th percentile is the upper limit of the "moderately large" category.

MACDONALD, Pittsburgh.

WEIGHT-AGE AND HEIGHT-AGE. ELSA P. WOODROW and ISABEL ROBERTSON, South African M. J. **24**:761 (Sept. 9) 1950.

Native South African children were surveyed over a period of two years to determine their standing in comparison with normal weight, height, and age tables for European children. The curve ran consistently below that for European children, with the disparity as regards weight becoming slightly more marked as age increased.

McGUIGAN, Evanston, Ill.

ON THE PROTECTION OF AND ASSISTANCE TO THE ILLEGITIMATE CHILD. M. BERGAMINI, G. F. AMBROSO and C. TORRICELLI, Lattante **21**:321 (June) 1950.

The article is wholly devoted to a symposium on illegitimate children and the means available and proposed to meet the sociological and legal aspects of their needs. It is the obligation of the province to afford means for the care and education of these children, including placement if needed and the supervision of orphanages. New laws are outlined; they are now under consideration by the Italian Senate.

HIGGINS, Boston.

Prematurity and Congenital Deformities

TRANSPOSITION OF VISCERA IN SIBLINGS. C. B. LEININGER and STANLEY GIBSON, J. Pediat. **37**:195 (Aug.) 1950.

The authors report transposition of the viscera in two cases of siblings, both involving brothers. Three of the children had complete situs inversus, and two of these had seven congenital cardiac malformations.

MACDONALD, Pittsburgh.

PROLONGATION OF INITIAL STARVATION PERIOD IN PREMATURE INFANTS. WILFRED GAISFORD and SHEILA SCHOFIELD, Brit. M. J. **1**:1404 (June 17) 1950.

Gaisford and Schofield point out that a good number of premature infants die of asphyxia because of aspiration of fluids taken by mouth. In their nursery they have delayed the initial feeding from the customary 24 hr. after birth to 70 or more hours. They like the babies to be left alone until they show signs of hunger, begin to cry and suck their lips as evidence of needing extra fluid. No difficulty has been encountered concerning the urinary tract, and only three patients in their series required any parenteral administration of fluids.

This procedure was carried on for two and one-half years and was applied to 231 premature infants. It was stated by the nurses who attended these babies that on the whole they ate better and there was a good deal less complication in feeding than had been experienced previously. It was noted that the initial weight loss was somewhat greater than in those fed routinely, but it was also noted that at the end of a three-week period these patients had gained more than corresponding babies who had been fed at the usual 24 hr. period. No signs of hypoglycemia were noted and in only a very few cases did any inanition occur.

Vitamin K was given routinely to all of these babies. It was felt by the authors that this procedure was safe and gave excellent results, and that the actual time of the first feeding should be determined by the individual infant by his cry and by progressive diminution of urinary excretion.

BIRDSONG, Charlottesville, Va.

Newborn

ARTERIAL THROMBOSIS IN THE NEWBORN INFANT. HAROLD D. PERLMUTTER and DAVID H. WAGNER, J. Pediat. **37**:259 (Aug.) 1950.

This was probably a case of thrombosis of the common iliac artery. Delivery had been short but complicated by the cord being wrapped around the infant's neck. Resuscitation of the baby at birth was difficult. On the second day signs of circulatory impairment of his right leg developed. A necrotic area subsequently developed over the right buttock and also gangrene of the fifth toe. Treatment consisted in washing the extremity with alcohol and applying antiseptic dressings. Penicillin was given and oxygen administered continuously. Bishydroxycoumarin (dicumarol®) was given from the 20th to 30th days.

Some circulation gradually returned to the leg, and the buttock wound healed. But at 6 mo. of age, the leg muscles were atrophic and motion of the leg was poor. Signs of mental retardation also developed, which is not surprising when one remembers the infant's difficulties at birth.

MACDONALD, Pittsburgh.

THE POSSIBILITY OF EVALUATING AS EARLY AS THE FIRST DAYS OF LIFE THE CONSTITUTIONAL CAPACITY FOR GROWTH BY MEANS OF THE SODIUM-CHLORIDE RATIO. P. BUONOCORE, Lattante **19**:641 (Nov.) 1948.

The constitutional tendency for growth is greater in the newborn infant in whom the sodium-chlorine ratio of the blood is constant (trophostable infant) than in the newborn infant who has a sodium-chlorine ratio which varies from day to day (tropholabile infant).

HIGGINS, Boston.

NEONATAL SEPTIC THROMBOPHLEBITIS TREATED WITH PENICILLIN AND HEPARIN. L. GAMBARA, Lattante **19**:671 (Nov.) 1948.

In a baby weighing 5 pounds 15 ounces (2,700 Gm.) at the age of 12 days septicemia developed from an infected umbilicus. Treatment was with penicillin; after the third day, heparin was also administered. On the twelfth day the child had recovered, and medication was discontinued after 1,200,000 units of penicillin and 5 cc. of heparin (5 per cent) had been given in all.

HIGGINS, Boston.

PHYSIOLOGICAL LOSS OF WEIGHT IN THE NEWBORN: URINARY ELIMINATION OF POTASSIUM, NEUTRAL SULFUR AND POLYPEPTIDES IN THE FIRST DAYS OF LIFE AND ITS SIGNIFICANCE. P. BUONOCORE and A. MAZZEO, Pediatria **56**:624 (Oct.-Dec.) 1948.

Research on the excretion of potassium, neutral sulfur and polypeptides in the urine during the period of weight loss and weight increase in the newborn infant confirms the fact that the first days after birth represent a peculiar biologic period that, among other manifestations, is marked with an oxidative hypofunction. Because of this hypofunction, the plastic substances contained in colostrum (the sole food adequate for the biologic necessities of the newborn infant) are sufficiently utilized. The oxidative hypofunction, probably the expression of the change of the oxidative activities from intrauterine to extrauterine, is evident during the period of weight loss and ends therewith. It seems, therefore, logical to limit the newborn period to that period during which there is weight loss and to consider this as a transition period between the intrauterine life and the metabolically efficient extrauterine life.

FROM THE AUTHORS' SUMMARY.

THE POSSIBILITY OF BREAST FEEDING IN NEWBORN WITH HEMOLYTIC DISEASE FROM RH INCOMPATIBILITY. MAURO AMATO, Pediatria **56**:718 (Oct.-Dec.) 1948.

The author presents a comparative research done on the behavior of specific antibodies in the blood serum, colostrum and milk of women isoimmunizated against the antigens of the Rh system. In the observed cases the author established the frequent absence of antibodies in milk and their constant presence in blood serum. The author emphasizes furthermore that with the method of reactivation he succeeded in raising the titer of the antibodies in the blood serum but not in the milk. With the description of his own research, the author considers the problem of breast feeding of newborn infants with hemolytic disease. It does not seem advisable to the author to give up breast feeding, even if the Rh antibodies are demonstrable in the colostrum or in the milk.

FROM THE AUTHOR'S SUMMARY.

CARDIAC SILHOUETTE AND CARDIAC DIAMETERS IN THE NEWBORN. AUGUSTÍN CASTELLANOS and OTTO GARCÍA, Rev. cubana pediat. **20**:133 (March) 1948.

The authors report a study of the diameters and the contour of the heart shadow in 15 normal newborn babies. The average transverse diameter was found to be 5 cm. and the longitudinal diameter 5 cm., with the basal diameter averaging 4 cm. The contour of the heart showed a great deal of variation, and the authors feel that its value in the diagnosis of congenital heart disease is rather limited. They state that the thymus shadow prevented an accurate estimation of the heart size and shape in the majority of babies. They note that a moderate enlargement of the thymus shadow was found in 31 of 50 babies, and there were only 16 in which no thymus shadow could be noted. The so-called pseudovascular and false pulmonary shadow was observed in four

babies. Thymus shadow simulating an enlarged medial arch of the pulmonary artery was mainly due to hypertrophy of the lower portion of the left thymus lobule. Numerous diagrams and tables of measurement are given.

KEITH, Rochester, Minn.

A CASE OF RITTER'S DISEASE. LUIZ GÓMEZ OROZCO, Bol. méd. Hosp. inf., México **5**:854 (Dec.) 1948.

A case of dermatitis exfoliativa (Ritter's disease) is presented; it is the third one seen at the Hospital Infantil in a total of 23,041 admissions. The author discusses the differential diagnoses with other varieties of dermatitis exfoliativa of the newborn.

Although the mother had a history of syphilis, this was not considered causative, since at the time there were no symptoms of syphilis, either in the mother or in the child. As treatment, penicillin was used, with good results, although there were doubts also as to the cause of the infection because of the absence of leukocytosis and neutrophilia and the presence of a high eosinophil count.

FROM THE AUTHOR'S SUMMARY.

SEROLOGICAL OBSERVATIONS IN FAMILIAL ERYTHROBLASTOSIS. N. NORDMEYER, Med. Klin. **39**: 1250 (Sept. 22) 1950.

A case is reported in which the first infant of a couple died with icterus gravis. The blood of the husband was type O Rh positive, and that of the wife, type O Rh negative. Blood taken from the mother the day after the birth contained blocking antibodies. The mother was 22 years of age. She had received intramuscularly blood from her mother at the age of 7 years. This blood from the wife's mother was type O Rh positive, and its blood corpuscles were agglutinated by her daughter's serum and by that of her daughter's husband. The typical erythroblastic newborn, whose father's blood was Rh positive and whose mother's blood was Rh negative, had received an exchange transfusion of 430 ml. Its own blood theoretically should have been Rh positive. The donor's blood was Rh negative. After the transfusion its blood corpuscles were not agglutinated by Rh positive serum. Reaction to anti-Rh-positive serum of specially high titer was not obtained until 35 days after the transfusion. The destruction of the foreign blood corpuscles may be deferred, therefore, longer than is usually thought. Based on this and other observations, the demand is made that the blood of the mother should be tested repeatedly or at least once toward term, to insure preparation for possible erythroblastosis. The serum of the pregnant woman should be tested with the blood corpuscles of the husband, to exclude sensitization to subgroups. The blood used for transfusion, even when given intramuscularly and at any age, should be tested.

AMBERG, Rochester, Minn.

PERSISTENCE OF ANTIBODIES IN THE SERUM OF PERSONS IMMUNIZED AGAINST THE RH FACTOR. P. SPEISER and J. SCHWARZ, Wien klin. Wchnschr. **41**:770 (Oct. 13) 1950.

In 32 cases of persons immunized either during pregnancy or by transfusion, or both, anti-Rh antibodies persisted on examination made after a period varying from six days to 24 months.

AMBERG, Rochester, Minn.

THE DISTRIBUTION OF RH FACTOR AMONG CHINESE. CHIEN-LUNG, YEN-CHIAO CHOW and YUN-MAY LIU, Chinese M. J. **66**:451 (Aug.) 1948.

The authors report the results of the testing of 782 adult healthy Chinese for the Rh factor. Of these, 118 were women, all of whom were Rh positive; 1.9 per cent of the entire group (all men) were Rh negative.

MACDONALD, Pittsburgh.

Acute Contagious Diseases

MYOCARDITIS IN POLIOMYELITIS. D. M. SPAIN, VICTORIA BRADESS, and V. PARSONNET, Am. Heart J. **40**:336 (Sept.) 1950.

Myocarditis was found in 12 of 14 necropsies. The severity of the myocarditis varied in different cases and in the same case in different areas of the myocardium. Clinical evidence

of myocarditis was found in only one instance. It is the opinion of the authors that in etiology myocarditis is specifically related to the poliomyelitis group of viruses. However, they did not believe that myocarditis played an important clinical role.

GIBSON, Chicago.

MODIFIED NASAL DIPHTHERIA IN IMMUNIZED PERSONS. WARREN WINKELSTEIN JR., New York J. Med. **50**:1117 (May 1) 1950.

The author reemphasizes that "missed cases" are highly important in setting up a community infection and that nasal diphtheria may be overlooked more frequently than is generally believed. Moreover, one should not assume that previous efforts at immunization insure against any infectious disease. The factors involved are so variable that the desired immunity may not have been obtained at all or perhaps only partially.

Four cases are reported. All the patients had varying degrees of mucopurulent nasal discharge, with ulcerations at the mucocutaneous junction in the nares. Fever was not notable. Nasal cultures in three cases confirmed the diagnosis of diphtheria, but throat cultures were negative in all cases. Membranes were not seen; there was little blood-stained discharge, and no complications were found in the heart or elsewhere after the acute condition had cleared. There were no paralyses. Antitoxin should always be administered as a preventive of complications and as an aid to early relief and cure. The possibility of contagion must be emphasized, for diphtheria in any form is easily acquired. Winkelstein rightly stresses the need among medical practitioners for a high degree of "suspicion" of this disease and the taking of cultures in every case of "running nose," especially in children.

I. W. VOORHEES, New York [ARCH. OTOLARYNG.].

INFECTIOUS MONONUCLEOSIS AND DIPHTHERIA. C. CHOREMIS, N. ZERBOS, and E. SAMARAS, Ann. pædiat. **175**:475 (Dec.) 1950.

The authors report that in the course of a diphtheria epidemic cases of infectious mononucleosis were noted too. They describe 10 cases, five of which presented the clinical picture of diphtheria and mononucleosis combined, while the other five were cases of pure mononucleosis.

FROM THE AUTHORS' SUMMARY.

TREATMENT OF DIPHTHERIA WITH SERUM AND PENICILLIN. C. CELLA, Lattante **19**:479 (Aug.) 1948.

The use of penicillin to supplement antitoxin was found of value in the treatment of a patient with diphtheria in whom cardiac and nervous symptoms were present.

HIGGINS, Boston.

TREATMENT OF DIPHTHERIA WITH PENICILLIN. V. MENGOLI and L. ZAMBELLI, Lattante **19**:529 (Sept.) 1948.

A series of 67 patients with diphtheria were treated with penicillin and antitoxin, and another series of 53 patients were treated with sulfathiazole and antitoxin. The inclusion of penicillin therapy to supplement the antitoxin speeded up the obtaining of cultures negative for Corynebacterium diphtheriae, the disappearance of the membrane, the lymphadenitis and the edema, and the clinical recovery in cases of acute diphtheria. However, the mortality rate and the occurrence of late complications—cardiac and paralytic—were as great for patients treated with penicillin and antitoxin as for patients treated with sulfathiazole and antitoxin.

HIGGINS, Boston.

THERAPEUTIC RESULTS WITH STREPTOMYCIN IN PERTUSSIS. C. IMPERATO, Lattante **19**:646 (Nov.) 1948.

Eight children with pertussis, four of them under 4 months of age, were given streptomycin, with excellent therapeutic results.

HIGGINS, Boston.

THE PERCENTAGE OF NICOTINIC ACID IN THE BLOOD, THE SPINAL FLUID, AND THE URINE OF PATIENTS WITH ACUTE POLIOMYELITIS, BEFORE AND AFTER THE ADMINISTRATION OF THIAMINE, OR SODIUM NICOTINATE, OR HYPERTONIC SODIUM CHLORIDE SOLUTION. V. BAFFI and A. DE BLASIO, Pediatria **56**:449 (July) 1948.

The spinal fluid of children with acute poliomyelitis has three to eight times more nicotinic acid than the spinal fluid of normal children. The administration of the sodium salt of nicotinic acid, or of thiamine, intramuscularly or intravenously causes no appreciable increase in the nicotinic acid content of the spinal fluids of either normal children or children with acute poliomyelitis. Intravenous injection of hypertonic (20 per cent) sodium chloride also does not affect the nicotinic acid content of the spinal fluid in children with poliomyelitis.

HIGGINS, Boston.

ALTERATIONS OF CARBOHYDRATE METABOLISM IN DIPHTHERIA IN THE LIGHT OF HISTOLOGICAL FUNCTIONAL MODIFICATIONS IN THE ENDOCRINE APPARATUS. PAOLO PROSPERI, Riv. clin. pediat. **47**:209 (March) 1949.

The results obtained in the examination of the fasting blood sugar level of 25 patients with diphtheria in various phases of the disease are reported. A slight tendency toward hyperglycemia was noted in the first 10 days of illness, frequent decrease in the next 10 days and a new increase in the following 10 days.

In the guinea pig, minimum lethal doses of diphtheria toxin cause sudden decrease in the fasting blood sugar as long as the poisoning lasts at least two days.

The results of the histopathological study of the endocrine glands is reported, and great importance is attached, as regards their influence on the hydrocarbonate metabolism, in the first place to the lesions of the adrenal glands and secondly to those of the islets. The hypophysis, the thymus and the thyroid gland also take part in the general picture, with lesions which are often typical but play a secondary role.

FROM THE AUTHOR'S SUMMARY.

PENICILLIN IN TREATMENT OF SCARLET FEVER. G. P. SORMANO, Riv. clin. pediat. **47**:222 (March) 1949.

After having examined 170 patients with scarlet fever who were treated partly with sulfonamides, partly with sulfonamides associated with penicillin and partly with penicillin only, the author contributes evidence of the advantages of penicillin treatment, which if adequately used for at least six days, notably shortens the duration of the disease and the residence in the hospital and helps to avoid the danger of relapses and complications.

FROM THE AUTHOR'S SUMMARY.

PROPHYLACTIC VALUE OF THE SULFONAMIDES IN THE COMPLICATIONS OF MEASLES. E. ALEMÁN, Rev. cubana pediat. **20**:223 (April) 1948.

The author gave sulfadiazine to 97 patients with measles, the treatment beginning when the exanthem appeared. None of the patients had any complications. Other patients, not given sulfonamides, presented complications such as conjunctivitis and enteritis.

KEITH, Rochester, Minn.

A CASE OF POSTVACCINAL ENCEPHALOPATHY. FLORENCE F. ESCARDO and HECTOR J. NAZQUEZ, Arch. pediat. Uruguay **21**:701 (Sept.) 1950.

A case is described of a child that two weeks after the first dose of 1 cc. of the triple vaccine against whooping cough, diphtheria and tetanus presented a typical convulsive crisis, with turning of the eyes. In spite of this, the second dose was given, and this caused 2½ hours later the onset of a convulsive febrile state with cyanosis, first sign of a typical epileptic condition with an important psychomotor retardation, which was attributed by the physician to intestinal parasitosis. Nearly two years later the child has encephalopathy and is greatly retarded. The

pneumoencephalogram reveals dilatation of the third ventricle and discrete global increase of the lateral ventricle. The electroencephalogram shows important bioelectrical disorganization, absence of focus and combined paroxysmal cerebral dysrhythmia with predominance of "petit mal."

The authors are in favor of formal contraindication of all vaccination in children showing the slightest lability of the nervous system in themselves or their consanguineous relatives and above all emphasize that the second dose should not be used when the first has determined the least symptom of intolerance of the nervous system. FROM THE AUTHORS' SUMMARY.

TREATMENT OF SEPTIC SCARLET FEVER. J. TAMÁSI, Paediat. danub. **5**:224 (March-April) 1949.

Since it is proved that hemolytic streptococci play a pathogenic role in the causation of scarlet fever, treatment of septic forms has to be directed against both that organism and its toxin. Crystalline penicillin should be administered every three hours, in doses of 30,000 to 40,000 units for small children and 50,000 to 60,000 units for older ones, for a few days after the temperature becomes normal. Sulfathiazole, together with penicillin, should also be given, in doses of 0.20 Gm. per kilogram of body weight for children under 3 years of age and 4 to 6 Gm. a day for older patients. Sulfonamides are contraindicated if the liver is considerably enlarged. Convalescent serum should also be administered. Instead of several small doses, a single daily injection of a large quantity is preferred, 40 to 60 ml. for small children, 80 to 120 ml. for older ones. Administration of serum must be repeated daily until the subsidence of toxic symptoms occurs. Should there be no convalescent serum available, or in cases in which the disease has become serious owing to neglect, horse serum can be given in doses of 20,000 to 40,000 units a day. It is not possible to combat toxemia with immune transfusions alone, but they may be of help in the cases of suppurative processes. Apart from the above, 10 to 20 ml. of a 20 per cent solution of dextrose, together with 500 mg. of vitamin C and 10 mg. of vitamin K, are administered intravenously every day. In cases of severe unrest or delirium barbiturates should be given twice a day. The condition of the heart should be checked by electrocardiography every day, and where needed, ouabain, in doses of 0.1 to 0.2 mg., should be given. Decrease of blood pressure has to be combated by cortical extracts. It is of utmost importance that treatment should be started as soon as possible. In neglected cases even the most energetic measures will remain ineffective. FROM THE AUTHOR'S SUMMARY.

VIEWPOINTS ON SMALLPOX VACCINATION IN OLDER CHILDREN. H. OPITZ, Kinderärztl. Praxis **16**:84 (March-April) 1948.

The problem of immunization of children of around 3 to 4 years of age, who escaped vaccination because of unstable conditions in Germany during the last years, is discussed. The legal implications of possible encephalitic complications and the statistical incidence of morbidity and mortality of postvaccinal encephalitis are presented. It seems that with increasing age the morbidity rate mounts rapidly, beginning with the completed second year of life. The mortality rate is highest between 3 and 5 years of age. Children who have recovered from or have diseases or anomalies of the central nervous system and the siblings of these children should not be vaccinated, as they are more endangered by the above complications.

GLASER, Chicago.

Acute Infectious Diseases

A CLINICAL TRIAL WITH CHLOROMYCETIN IN SHIGELLA DYSENTERIAE (SONNEI). MILTON M. MAZURSKY, J. Pediat. **37**:238 (Aug.) 1950.

Four children with diarrhea caused by Shigella sonnei responded promptly to treatment with chloramphenicol (chloromycetin®). The infecting organism disappeared rapidly from the stool, and clinical symptoms disappeared within a few days. MACDONALD, Pittsburgh.

ORAL PENICILLIN PROPHYLAXIS IN RHEUMATIC FEVER. M. BRICK, H. MCKINLEY, M. GOURLEY, T. E. ROY, and J. D. KEITH, Canad. M. A. J. **63**:255 (Sept.) 1950.

Thirty-eight rheumatic children were given oral doses of penicillin daily for two years, in an effort to determine the effect of the antibiotic on recurrences of rheumatic infections. Results were inconclusive, though it was noted that there was an almost total disappearance of beta hemolytic streptococci from the throats of the treated group. The dosage used was 50,000 units orally twice daily.

McGUIGAN, Evanston, Ill.

DISCUSSION ON THE MANAGEMENT OF RHEUMATIC FEVER AND ITS EARLY COMPLICATIONS. PAUL WOOD, Proc. Roy. Soc. Med. **43**:195 (March) 1950.

In any patient with rheumatic fever or suspected rheumatic fever it is vitally important to detect the presence or absence of clinical carditis. The chief signs of active carditis are (1) significant mitral systolic murmur; (2) the Carey-Coombs murmur; (3) a new or transient aortic diastolic murmur; (4) cardiac enlargement; (5) pericardial pain, friction, or effusion, or electrocardiographic proof of pericarditis; (6) elevation of the jugular venous pressure and other evidence of heart failure, and (7) prolongation of the P-R interval or Q-T_c. Prolongation of Q-T_c has proved a valuable index of activity. The management of patients known to have carditis still follows traditional paths; they are usually kept in bed until all evidence of activity has subsided or until hope of its ever doing so is abandoned. There is no evidence that the natural course of the disease can be influenced in any other way and precious little that it is greatly influenced by rest. However, it is up to those who believe that physical effort does no harm in the active phase of the disease to prove their point before we can be expected to give up so obvious a remedy.

HEARD, Monterey, Calif.

TREATMENT OF TETANUS NEONATORUM BY DROP-METHOD INFUSION OF SERUM. ANSELMO CALAMARI, Riv. clin. pediat. **48**:235 (April); 277 (May) 1950.

A new method for the therapy of tetanus in the newborn, consisting in intravenous infusions of high doses of antitetanic serum, is described.

FROM THE AUTHOR'S SUMMARY.

FIRST CASE OF THYROID TREATED BY CHLOROMYCETIN IN REUS. A. FRIAS ROIG, Acta pediat. españ. **86**:149 (Feb.) 1950.

Frias Roig reports the case of a 30 month old child who had been treated with aminopyrine, sulfonamides and penicillin without any improvement. On the fifteenth day when the author saw him, he was in convulsions with temperature of 40.5 C. (104.9 F.) and pulse rate of 140, dehydrated and with sordes of the mouth, diarrhea and frequent epistaxis.

After an enema of chloral hydrate, 30 cc. of a 5 per cent solution, to stop the convulsions and 5 drops of nikethamide every eight hours to prevent circulatory failure, use of chloromycetin was started. After two doses of 0.25 Gm. improvement was noted, and this dose was continued every three hours for 24 hours. The interval between doses was four hours on the second day and five hours on the third. Consciousness returned and the child retained food and was much better on the first day after treatment; the highest temperature was 38.2 C. (100.8 F.), and from then on there was no fever. Chloromycetin was administered for five days (total dose 6.50 Gm.).

The feeding schedule was the usual one, although solids were tolerated somewhat earlier than usual.

ALLEN, Santa Fe, N. M.

Chronic Infectious Diseases

PENICILLIN IN THE TREATMENT OF CONGENITAL SYPHILIS. NOEL G. SHAW, Illinois M. J. **98**:193 (Sept.) 1950.

This report deals with 36 infants and children treated with penicillin G or with penicillin procaine. Of 19 children treated with penicillin G, seven were 2 yr. old or less. The doses of penicillin G for infants varied from 95,000 to 1,311,000 units per kilogram. Of the infants with

early congenital syphilis treated with penicillin G, five of the seven seem cured (one had to be retreated) and the other two, treated recently with large doses, are seronegative and probably cured.

The doses of penicillin G for 12 older children varied from 37,000 units per kilogram to 207,000 units. The results of penicillin G therapy for the 12 older children were very unsatisfactory so far as an early cure is concerned. Of the 21 children treated, there were but two cures.

Twenty-one children 5 to 15 years old with late congenital syphilis were treated with some form of penicillin procaine. There were no reactions or sore hips encountered. The doses used were 100,000 to 200,000 units per kilogram. Two of the 21 are satisfactory 10 months after therapy with penicillin procaine. Of the other 19 patients, 7 are considered unsatisfactory and 12 are considered doubtful. The results with daily injections are no worse and probably better than with the three hourly injections of the soluble penicillin G. Even with bismuth following penicillin procaine or soluble penicillin, an appreciable number of patients with late congenital syphilis are not being cured. The use of penicillin still represents an improvement over the old style treatment with arsenic and bismuth. One can probably do as much good in cases of late congenital syphilis with 10 to 21 days of penicillin procaine and 15 to 20 weeks of bismuth as he could with one or two years' treatment with arsenic and bismuth.

BARBOUR, Peoria, Ill.

CONGENITAL TUBERCULOSIS. FREDERICK EUGENE AMICK, MANNING W. ALDEN, and LEWIS K. SWEET, Pediatrics **6**:384 (Sept.) 1950.

Congenital tuberculosis can be postulated only when both the tuberculous nature and the congenital origin of the lesion can be demonstrated. A primary tuberculous complex in the liver is proof of congenital infection, as is pulmonary or other tuberculosis in an infant who dies at or shortly after birth. An infant who lives more than a few days can be said to have a congenital infection only if he has been separated immediately and completely from his mother and has been kept in an environment free from tuberculosis.

The recent literature on congenital tuberculosis has been reviewed, and detailed reports of four patients with congenital tuberculosis, all prematurely born infants, have been given. Three infants born of mothers with acute miliary tuberculosis apparently contracted the disease by aspiration of infected amniotic fluid in utero. The fourth infant, who was born to a mother with acute pelvic tuberculosis and tuberculous peritonitis, seems to have been infected during passage through the birth canal. Two of the infants were treated by intramuscular injections of streptomycin. In both instances the tuberculous infection appears to have been arrested; the infants are in good condition at the ages of 18 and 24 months, respectively. It is recommended that all infants born to mothers with acute miliary or pelvic tuberculosis be followed with frequently repeated tuberculin tests to insure an early diagnosis and adequate treatment.

FROM THE AUTHORS' SUMMARY.

RESULTS OF THERAPY IN 265 CASES OF TUBERCULOUS MENINGITIS. ARRIGO GALEOTTI FLORI, Pediatrics **6**:391 (Sept.) 1950.

The technic of streptomycin and sulfone treatment followed at the Pediatric Hospital of the University of Florence has been outlined. Successive improvements in the technic of therapy are reflected in the increasing percentage of recoveries with the passage of time. The results of therapy in 265 cases of tuberculous meningitis seen since December 1946 are reported. The overall mortality in the year 1948 for treated patients was 26 per cent. Some patients have been entirely well for over 2½ years.

FROM THE AUTHOR'S SUMMARY.

PRACTICAL APPLICATION OF A HEMAGGLUTINATION REACTION IN TUBERCULOSIS. SIDNEY ROTHBARD, A. S. DOONEIEF, and K. E. HITE, Proc. Soc. Exper. Biol. & Med. **74**:72 (May) 1950.

Hemagglutination tests for tuberculous antibodies in the serum of normal adults were studied. Of the serums of 110 normal adults, 105 contained no antibodies, and of the serums of 106 patients with nontuberculous diseases, 98 gave a negative reaction. In contrast, of the serums of 168 patients with active tuberculosis, 155, or 92.3 per cent, showed positive reactions in titers of 1:8 to 1:512. Of 33 persons who had been in good health for seven years but at one time did have active pulmonary tuberculosis, 31 gave a negative reaction. These data confirm the

observations of Middlebrook and Dubos (*J. Exper. Med.* **88**:521, 1948) on the specific agglutination of sheep erythrocytes sensitized with antigen from tubercle bacilli by serum from tuberculous patients. From a group of 120 tuberculous patients whose serums were tested in series at monthly intervals, it has been noted that in 10 the antibodies are no longer detectable by this technique. The disappearance has been correlated with absence of activity of the disease, as well as with failure to demonstrate tubercle bacilli in the sputum or gastric contents on smear or culture.

HANSEN, Galveston, Texas.

STERNAL MARROW PUNCTURE IN THE DIAGNOSIS OF MILIARY TUBERCULOSIS IN CHILDREN. JOHN WILSON, Canad. M. A. J. **63**:504 (Nov.) 1950.

For 32 children suffering from tuberculosis sternal punctures were of value in making a diagnosis of tuberculosis.

McGUIGAN, Evanston, Ill.

RADIOLOGICAL AND PATHOLOGICAL CORRELATION OF MILIARY TUBERCULOSIS OF LUNGS IN CHILDREN. J. L. EMERY and J. LORBER, Brit. M. J. **2**:702 (Sept. 30) 1950.

The accuracy and speed of the present methods of diagnosis of miliary tuberculosis in life were analyzed. The material consisted of 52 consecutive children with histologically proved miliary tuberculosis of the lung.

Roentgenograms of the chest taken within 14 days of death were available in all cases. The fundus oculi was examined for choroidal tubercles in 48 children. Eighteen, or only about one third, of the cases were diagnosed by roentgen examination by a panel of experts. In 25 of 48 cases choroidal tubercles were seen. Altogether, 28 of the 52 cases were diagnosed in life.

Histological observations suggested that the number and the size of the tubercles were the major factors in the production of the diagnostic roentgenological appearances. The tubercles were more numerous and larger in the 18 cases in which the roentgenogram was positive than in the 34 in which it was negative. Choroidal tubercles were present in a significantly higher proportion in the former (15 of 17) than in the latter (10 of 31).

Clinical features consistent with miliary tuberculosis and the presence of early choroidal tubercles establish the diagnosis irrespective of the roentgenological findings. The authors conclude that the present methods of diagnosis miliary tuberculosis are not accurate enough.

FROM THE AUTHORS' SUMMARY.

IMMUNIZATION AGAINST TUBERCULOSIS BY BCG VACCINE. P. K. CHATTERJEE, Indian J. Pediat. **15**:177 (Oct.) 1948.

A discussion of the use and effectiveness of BCG vaccine is presented, with the suggestion that its use in India should be of considerable value. Preliminary studies would be necessary.

McGUIGAN, Evanston, Ill.

THREE YEARS OF ROUTINE ROENTGEN STUDIES FOR DETECTION OF PRIMARY TUBERCULOUS INFECTION DURING PUBERTY. H. WERNER. Presse méd. **57**:569 (June 18) 1949.

Although few cases of tuberculosis are discovered in adults by systematic annual roentgenograms, the author has discovered 89 cases of primary tuberculosis in a study of 353 adolescents. Twice as many cases occurred in girls. Diagnosis cannot be made with the stethoscope but is achieved through systematic observation of weight, skin testing, and roentgenography. Primary tuberculous infection is four times more frequent during puberty than during the earlier school years.

DAFFINEE, Melrose, Mass.

UNNECESSARY USE OF STREPTOMYCIN IN PULMONARY TUBERCULOSIS OF CHILDREN. P. LOWYS, Presse méd. **57**:600 (June 25) 1949.

The author, who has charge of a sanatorium in Haute-Savoie, deplores the use of streptomycin in cases of childhood tuberculosis, except when specifically indicated. He considers as

indications (1) age less than 18 months, (2) rapidly advancing process, (3) evidence of hematogenous spread of the disease, (4) bronchopneumonic lesions and (5) association with other bacteria (such as pertussis) in which both organisms are sensitive to streptomycin.

DAFFINEE, Melrose, Mass.

THE TREATMENT OF TUBERCULOUS MENINGITIS WITH STREPTOMYCIN. R. RIVOIRE and A. COLLEAU, Presse méd. **57**:632 (July 6) 1949.

The authors report a small series of cases of tuberculous meningitis in which treatment was with lengthy courses of streptomycin, feeling that their results justify the presentation of their method of treatment. Of 30 patients, 3 have died (not counting those who failed to survive 24 hours of treatment) and 10 have survived one year.

Streptomycin is used in an isotonic solution of twice-distilled water. Intrathecal injection of 100 mg. is done, very slowly, twice a day for a month, daily for the second month and every two or three days for the third month. At the same time, streptomycin is given intramuscularly (2.0 Gm. a day for adults, 1.5 for children and 1.0 or less for infants), and the dose is increased until a sufficiently high blood level is obtained. After four months the dosage can usually be carried on at a lower amount. After six months the patient can be returned home, but treatment is continued for the remainder of the year.

DAFFINEE, Melrose, Mass.

ONE YEAR'S OBSERVATION OF CHILDREN WITH TUBERCULOSIS CARED FOR AT THE SEASHORE. D. GIOVANETTI, Clin. pediat. **32**:264 (May) 1950.

Two hundred and fifteen children with various types of tuberculosis responded very favorably to sanatorium treatment and care at the seashore.

HIGGINS, Boston.

STREPTOMYCIN TREATMENT OF MILIARY TUBERCULOSIS. O. RUZICZKA, Wien. klin. Wchnschr. **60**:840 (Dec. 31) 1948.

In nine cases of miliary tuberculosis of the lungs good results were obtained with streptomycin treatment. Eleven of 44 children with tuberculous meningitis, many with miliary tuberculosis of the lungs in addition, could be dismissed shortly after treatment; 12 are still under treatment, and 16 died. The duration of observation did not exceed much more than 11 months.

AMBERG, Rochester, Minn.

EYEGROUND FINDINGS IN CASES OF TUBERCULOUS MENINGITIS AND OF MILIARY TUBERCULOSIS OF THE LUNGS TREATED WITH STREPTOMYCIN. F. MEJER, Wien. klin. Wchnschr. **60**:842 (Dec. 31) 1948.

In most cases of miliary tuberculosis of the lungs with or without tuberculous meningitis in which eyeground changes were found, a rapid regression of such changes followed institution of streptomycin treatment.

AMBERG, Rochester, Minn.

EXPERIMENTAL DATA ON THE DIFFERENTIAL DIAGNOSTIC PROBLEM OF TUBERCULIN SENSITIVITY IN CASES OF BCG VACCINATION. I. ZIMÁNYI, Orvosok lapja **4**:51 (Jan. 11) 1948.

Since the introduction of BCG vaccination, all the vaccinated children are tuberculin positive. In consequence of this, the tuberculin test lost its great value for recognition of a newly acquired spontaneous tuberculous infection. According to the experiences in Russia, if, three months after the BCG vaccination, a child shows, besides the positive intracutaneous reaction, a positive Pirquet reaction, a newly acquired spontaneous tuberculous infection might be assumed to have developed. Zimányi examined 180 children who were vaccinated with BCG five months previously. The children received on their right arm an intracutaneous test (using 1 mg. of tuberculin), and a Pirquet test on their left arms. The intracutaneous test showed positive results in 86 per cent of the cases, but the Pirquet test gave a positive reaction in 52.5 per cent. Then a similar experimental group was selected. The children first received a Pirquet test,

which showed a positive reaction in only 5.8 per cent, and the intracutaneous test, performed two weeks later, using 1 mg. tuberculin, showed a similarly large proportion of positive reactions as for the former group. From these experiments Zimányi draws the conclusion that in spite of the fact that the chronologic application of the tuberculin tests might give very different results, this procedure does not seem to be reliable enough to distinguish a spontaneous tuberculous infection in BCG-vaccinated children. GÖRGÉNYI-GÖTTCHE, Budapest, Hungary.

CHANGES OF THE FUNDUS IN CHILDREN WITH TUBERCULOUS MENINGITIS TREATED WITH STREPTOMYCIN. S. KOTLIAREVSKAYA and A. DOBROGAYEVA, Vestnik, oftal. **28**:21, 1949.

Seventy-five children with tuberculous meningitis, of ages from 5 mo. to 14 yr., were under observation from one to 11 mo. Of these, 45 were treated with minimal doses of streptomycin (0.02 to 0.05 gm.), injected into the suboccipital region, as well as intramuscularly. Seventeen children died during the first three months of treatment, and seven children, during the fourth to the 11th mo. of hospitalization. The treatment with streptomycin changed the course of the disease. In some cases the disease was retarded, but after a prolonged remission the children died of an exacerbation of the tuberculous meningitis. Funduscopic examination revealed solitary tubercles in six children, tubercles and papilledema in eight children, and papilledema only in 16 children. In 15 children no changes in the fundus were seen. The tubercles were observed in various stages of the disease, frequently when the clinical symptoms of meningitis had subsided under the treatment with streptomycin, the spinal fluid was clear, and the child felt rather well.

In two children the appearance of solitary tubercles was noted simultaneously with inflammatory changes in the spinal fluid, with subsequent exacerbation of the meningeal symptoms one to two months later. In one of these patients the tubercle appeared on the 137th day of the disease, after the fourth course of treatments with streptomycin. In two children the tubercles appeared in the choroid at the initial stage of the disease, during the first course of treatment with streptomycin. In a group of 16 children papilledema was observed before treatment was started. Although streptomycin therapy influenced favorably the general course of the meningitis, the fundus signs remained unchanged. In a group of children not treated with streptomycin no changes in the fundus were observed, as they died within two or three weeks.

Thus, streptomycin retards the progress of tuberculous meningitis but does not prevent the fatal outcome. At the same time, the changes in the fundus are observed more frequently because of the retardation in the course of the disease. O. SITCHEVSKA [ARCH. OPHTH.].

Diseases of Blood, Heart and Blood Vessels and Spleen

PAROXYSMAL AURICULAR TACHYCARDIA: REPORT OF A CASE WITH PERSISTENT ECTOPIC AURICULAR PACEMAKER, WITHOUT SINOAURICULAR NODE ACTIVITY. M. M. ALIMURUNG, R. C. ELEY, and B. F. MASSELL, Am. Heart J. **40**:468 (Sept.) 1950.

An unusual case of a female infant aged 1 yr. 11 mo. with paroxysmal auricular tachycardia is reported, in whom the cardiac mechanism persisted in being an ectopic auricular pacemaker without any evidence of an active, normally placed sinoauricular node. A year after the control of the tachycardia, her electrocardiogram still showed abnormalities in the P waves indicating an ectopic pacemaker somewhere in the left auricle.

This case illustrates again the harmful effects of tachycardia, namely, the production of cardiac dilatation and congestive failure. Digitalis was effective in controlling both the tachycardia and the congestive failure. GIBSON, Chicago.

THE INCIDENCE OF RHEUMATIC HEART DISEASE IN NATIVE SCHOOL CHILDREN OF DADE COUNTY, FLORIDA. M. S. SASLAW, B. D. ROSS, and M. DOBRIN, Am. Heart J. **40**:760 (Nov.) 1950.

Examinations were made on 1,001 school children from 10 through 16 yr. of age who had been born and reared in southern Florida. Evidence of rheumatic heart disease was found in five children, or 0.5%. In two of the five children classified as rheumatic, there was some indication that the defect might be congenital.

The authors compared their findings with those of surveys made in various parts of the country and found distinctly higher incidence in the more northern sections of the United States.

GIBSON, Chicago.

METHEMOGLOBINEMIA IN INFANTS. A. R. EVELOFF, Illinois M. J. **98**:294 (Nov.) 1950.

Eveloff reports 25 cases of methemoglobinemia seen in young infants over a period of two years, due to the ingestion of well water containing a high nitrate content. There were two deaths. Treatment consisted of oxygen administration, intravenous administration of methylene blue, and some orally administered methylene blue.

There was a considerable decrease of the number of cases during the second year. This decrease was probably the result of a constructive survey by the Division of Sanitary Engineering of the Illinois Department of Public Health.

BARBOUR, Peoria, Ill.

IDIOPATHIC THROMBOCYTOPENIC PURPURA. GEORGE C. COE, JOSEPH T. GAULT, and HYMAN J. HIRSCHFIELD, Illinois M. J. **98**:313 (Nov.) 1950.

A report is given of a case of idiopathic thrombocytopenic purpura associated with an accessory spleen in a 17-yr.-old girl in whom menorrhagia was the major symptom, complicated by extensive hemothorax and hemoperitoneum. Splenectomy was resorted to as a lifesaving measure despite diminution of megakaryocytes in the bone marrow. Following recovery, a second case of purpura developed with thrombocytopenia due to chemotherapy inadvertently instituted for a pneumonic infection superimposed on a compressed lung due to the extensive hemothorax. Menorrhagia in a young woman should suggest a blood dyscrasia in the absence of a pathological condition of the pelvis or pregnancy; hemothorax and hemoperitoneum may be caused by purpura or other blood dyscrasias associated with hemorrhagic manifestations. Despite bone-marrow findings, splenectomy may be a lifesaving operation when all conservative measures fail to stop the bleeding, and careful search must be made for accessory spleens.

BARBOUR, Peoria, Ill.

HIGH VENTRICULAR SEPTAL DEFECT AND SLIGHT DEXTROPOSITION OF THE AORTA (EISENMENGER COMPLEX) ASSOCIATED WITH DEFORMED AORTIC VALVE SIMULATING PATENT DUCTUS ARTERIOSUS. RACHEL ASH and LOIS MURPHY, J. Pediat. **37**:249 (Aug.) 1950.

A continuous cardiac murmur heard in the second left intercostal space might lead the clinician to a diagnosis of patent ductus arteriosus. This diagnosis is not necessarily correct. In this case necropsy revealed a high interventricular septal defect and slight dextroposition of the aorta (Eisenmenger's complex) associated with deformity of the aortic valve. The diagnosis might have been established before death by intracardiac catheterization with the use of a manometer to register systolic and diastolic pressures. In patients with small hearts and a normal electrocardiogram, such catheterization is not necessary. But it is recommended before operation in those patients who, besides having the characteristic murmur, show marked cardiac enlargement, abnormalities in the phonocardiogram, the diastolic murmur of aortic insufficiency, or a systolic thrill and murmur near the xiphoid suggesting septal defect.

MACDONALD, Pittsburgh.

A CASE OF CYCLIC NEUTROPENIA. C. F. ROLLAND and L. S. P. DAVIDSON, Edinburgh M. J. **57**:205 (May) 1950.

This is a very rare disease. The patient described was a girl whose first symptoms appeared with the eruption of a tooth at 7½ mo. and then reappeared with varying intensity, about every 21 days, until she died suddenly with gross hematemesis at the age of 8 yr. Despite this recurrent illness, her growth and development were normal.

The symptoms were recurrent fever and ulceration of mucous membranes, usually in the mouth. Her peripheral blood showed a constant neutropenia between attacks; the highest count was 1,900 per cubic millimeter. With an attack the neutrophiles fell to very low levels or disappeared altogether. Along with this the lymphocytes fell to levels of 1,000 to 2,000 per

cubic millimeter. As the neutrophiles fell, the monocytes increased to peaks of 1,700 to 2,600 per cubic millimeter, falling again as the neutrophiles reappeared in the peripheral blood. Examination of the sternal marrow during an attack showed a maturation arrest of the granulocytes at the promyelocytes and myelocyte levels. Eosinophiles and myelocytes were increased in the marrow. The sedimentation rate increased during the attacks. Blood studies otherwise showed normal results.

Except for regional lymphadenitis during some attacks, her physical examination was not revealing. She had neither hepatomegaly nor splenomegaly. Throat cultures yielded pneumococci and nonhemolytic streptococci. Estrogens were normal. Gonadotropins showed no cyclic variation. Excessive gonadotropins were found during only one attack. The nature of the disease process is still a mystery.

MACDONALD, Pittsburgh.

Diseases of Nose, Throat and Ear

ANTIBIOTICS IN THE TREATMENT OF DISEASES OF THE EAR, NOSE AND THROAT. A. C. FURSTENBERG, Ann. Otol., Rhin. & Laryng. **58**:5 (March) 1949.

Furstenberg, after studying the use of antibiotics in otolaryngology, reaches the following conclusions concerning the subject.

Nearly all acute infections of the ear, nose, sinus, and throat respond well to the parenteral administration of penicillin. It is not always feasible to isolate and identify each organism, but when prompt clinical response is not noted, the organism must be identified and its sensitivity determined. Penicillin must come in contact with the organism and be sustained there. The author states that penicillin aerosol is of equivocal value in the nose and that the local use of penicillin in the mouth is not dependable except, perhaps, in ulcerative lesions, for which the direct application of cotton tampons saturated with penicillin solution, 10,000 to 15,000 units per cubic centimeter, may be used. The tampons are allowed to remain in contact with the ulcer for 20 min. or more, four or five times a day. In bronchiectatic cavities, the direct instillation, after aspiration of the secretion, of 2 or 3 cc. of penicillin in saline solution (50,000 units per cubic centimeter) three times a week, is useful. In chronic infections in which there is an encapsulated collection of secretion, or in which thickened mucosa surrounds the area, he feels that penicillin is of little value.

In cases of rhinogenic or otogenic meningitis in which time is an essential factor, steps to identify the organism should be taken and prompt treatment instituted. He advises that both penicillin and streptomycin be given at once, intramuscularly and intrathecally. Even aureomycin and chloramphenicol (chloromycetin®), particularly chloramphenicol, should be used in maximum dosage in conjunction with chemotherapy when an intercellular infection is suspected. Some of these agents can, of course, be eliminated in favor of the specific antibiotic as soon as the causative organism is found and its sensitivity determined. Aureomycin and chloramphenicol are effective when given by mouth; they permeate cell membranes and seem to overcome the cellular barrier to the spinal fluid. When given by mouth, the concentration in the spinal fluid is equal to 50% of that found in the blood serum.

Furstenberg states that administration of penicillin in the absence of infection may alter the normal basic flora of the throat and that prolonged administration of the antibiotic may produce penicillin-resistant organisms and will adversely affect treatment when it may be sorely needed.

Streptomycin is particularly effective in tuberculosis, in cervical adenitis, and in tuberculous lesions of the mucous membrane. It is highly probable that its allied agent, dihydrostreptomycin, which is comparatively free from neurotoxic effects, will replace the original antibiotic in the treatment of these conditions.

MILLER, Philadelphia [ARCH. OTOLARYNG.].

EFFECT OF DISCONTINUOUS PENICILLIN THERAPY IN ACUTE SUPPURATIVE OTITIS WITH SPECIAL REFERENCE TO OTITIS IN CHILDREN. TORBEN JERSILD and FLEMMING KIØRBOE, Acta oto-laryng. **38**:8 (Feb.) 1950.

A comparison is made in the treatment of suppurative otitis media between a group using penicillin and a control group. Two-thirds of the patients had scarlatinal otitis. The series comprised 266 patients, with a total of 385 affected ears. Penicillin was given "discontinuously,"

e. g., in small frequent doses of 15,000 units every four hours. In all cases the bacterial cultures were grown. In order of frequency the bacteria demonstrated or cultured were hemolytic streptococci, pneumococci, and nonhemolytic streptococci. In the penicillin-treated group Streptococcus could not be recovered after one day. In the nonpenicillin-treated group the streptococci could still be recovered from the aural discharge at the end of 20 days.

There was a striking difference, as well, in the length of the period that discharge from the ear continued. In the treated scarlatinal patients whose ears were running, the average period was six and one-half days; in the group of nontreated patients the average was 36½ days. Only 3.5% of the pencillin-treated group required mastoid surgery. In the nonpenicillin-treated group 30.5% required mastoid surgery.

The authors conclude that discontinuous penicillin therapy gives excellent results in the treatment of suppurative otitis in children.

LEWY, Chicago [ARCH. OTOLARYNG.].

Diseases of the Lung, Pleura and Mediastinum

BRONCHOGRAPH IN CHILDREN. EDUARDO RIVERO, Am. J. Roentgenol. **65**:173 (Feb.) 1951.

Bronchograms in children are obtained by introducing a catheter into the bronchial tree under fluoroscopic control, injecting opaque oil into the bronchus, and making roentgenograms with rapid exposure speeds (one-sixtieth of a second). Tuberculosis in children may frequently produce lobar or segmental atelectasis, particularly of the middle lobe of the right lung. Obstructed bronchi in atelectatic lobes demonstrate dilatation with circular constriction at intervals. With removal of the obstruction the bronchi may regain their normal shape. If obstruction persists, bronchiectasis may occur.

HODGSON, Rochester, Minn.

FUNNEL CHEST: ITS CAUSE, EFFECTS, AND TREATMENT. CHARLES W. LESTER, J. Pediat. **37**:224 (Aug.) 1950.

Funnel chest is a congenital hereditary defect that is caused by a short central tendon of the diaphragm. This short tendon retracts the lower end of the sternum and the substernal ligament during inspiration. The result of this retraction is to curve the sternum backward and in so doing to draw the ribs down and back. This, in turn, decreases the anterior-posterior dimensions of the chest and also, in time, increases the normal dorsal curvature of the spine. The person with funnel chest appears round-shouldered, hollow-chested, and potbellied. This deformity, with its resultant pressure upon the heart and lungs, may have serious physical, physiological, and psychological effects.

The treatment is surgical and should be performed at least before the age of 5 yr., although some good results have been obtained in adults. In infants 1 yr. of age or less, the xiphoid is detached from the sternum at the xiphisternal junction and the substernal ligament is divided.

The operation for older children is more complex and reparative. The operations are relatively safe, and, if they are done before the age of 5 yr., the results are good.

MACDONALD, Pittsburgh.

TREATMENT OF ASTHMATIC DISEASES IN INFANTS AND CHILDREN WITH CHAMAZULEN. SÁNDOR BLASZÓ, Schweiz. med. Wchnschr. **79**:222 (March 12) 1949.

Chamazulen is a dark blue hydrocarbon, a distillation product of the ethereal oils of Achillea millefolium and Matricaria chamomilla. Its constitution is not fully established. It has been stated that its specific action consists in the liberation of histamine over a protracted period of time, with a consequent diminution of histamine sensitivity. The drug was given intramuscularly in 0.5 to 2 per cent oily solution. The age of the patients varied from 3 months to 9 years. The asthma or spastic bronchitis yielded in all cases to from four to eight injections, of 0.01 to 0.02 Gm. each, given at two day intervals; one or two further injections seemed to stabilize the cure. In only three cases was it necessary to give 10, 11 or 12 injections. Occasionally the symptoms became worse, never for more than 56 hours. It is too early to decide whether recurrences may happen.

AMBERG, Rochester, Minn.

ROENTGENOLOGIC STUDY OF HILAR REGION IN TRACHEOBRONCHIAL ADENOPATHY IN CHILDREN, WITH STRATOGRAPHIC INDICATIONS. A. TUNESI and G. C. ABBA, Riv. clin. pediat. **47**:193 (March) 1949.

Stratigraphic examination of the hilar region has been done in a group of children with specific signs of tracheobronchial adenopathy, with the intent of putting in evidence the glandular formations, their volume and location, differentiating them from the complex hilar shadows seen in normal roentgenograms. Diagnosis with this method is more precise; the tubercular lymph nodes can be seen, and they have a characteristic aspect.

FROM THE AUTHORS' SUMMARY.

SPONTANEOUS PNEUMOTHORAX. RAUL MATTE and LUIS PULIDO, Rev. chilena pediat. **20**:198 (May) 1949.

The authors present eight cases of spontaneous pneumothorax in children between the ages of 20 months and 10 years. Of these, five were without pleural hypertension, whereas the other three had a marked increase of the intrapleural pressure and severe cardiovascular signs due to the mediastinal shift.

The authors consider that the first five cases do not present a clinical or a therapeutic problem, as all of them had a favorable course. Regarding those belonging to the second group, they insist on the importance surgery by Donovan and Drachter's method being done as soon as the diagnosis is made. The authors believe that this method fulfils all the indications for immediate surgery in these dramatic cases and constitutes a definitive treatment.

FROM THE AUTHORS' SUMMARY.

PULMONARY MONILIASIS. RAUL MATTE and ROBERTO GALECIO G., Rev. chilena Pediat. **20**: 204 (May) 1949.

An unusual form of lung disease caused by a fungus, Candida albicans, is reported. The diagnosis was made possible by the constant recovery of this fungus from the sputum. The importance of this case lies in the differential diagnosis among tuberculosis, bronchiectasis, chronic bronchitis or even lung abscess. In chronic lung disease, especially if there is a great amount of sputum, or even in the presence of hemoptysis, the possibility of a fungous infection should be kept in mind, and fungi should be looked for in the sputum.

FROM THE AUTHORS' SUMMARY.

INTERLOBAR PLEURISY IN CHILDHOOD. L. WEINGÄRTNER, Monatsschr. Kinderh. **98**:16 (Jan.) 1950.

Of 204 cases of interlobar pleurisy, 122 were due to tuberculosis, 61 had neither clinical evidence of tuberculosis nor positive tuberculin skin reactions and 21 showed positive tuberculin skin reactions but showed no tuberculosis clinically or roentgenologically. The differential diagnosis between specific and nonspecific interlobar pleurisy was difficult. The duration of illness was shorter in the nonspecific group, which was also characterized by more clinical symptoms, although no distinct clinical picture could be found. Various types of pneumonia and grippelike diseases were found to be the causative diseases in the nonspecific group.

HARTENSTEIN, Madison, Wis.

ATELECTASIS AND EMPHYSEMA. E. FARKAS and P. SONNAUER, Paediat. danub. **5**:151 (March-April) 1949.

The cause, classification and roentgen picture of atelectasis and emphysema in infants and children are discussed in detail. Atelectasis may be due to compression or obstruction. Emphysema is either of a compensating or of an obstructive type. Attention is called to the importance of roentgenoscopy from both the frontal and the sagittal plane. This is of great value both in the examination of atelectasis of single pulmonary segments and in the diagnosis of bullous emphysema (pneumatocele) and multiple cysts.

FROM THE AUTHORS' SUMMARY.

PLEURAL EMPYEMA IN INFANTS. E. FARKAS, Paediat. danub. **6**:34 (July) 1949.

Pathology, symptoms and treatment of empyema are reviewed in detail on a basis of 36 cases. In the cases in which the organisms were sensitive to that drug, penicillin was used on the average in eight doses of 10,000 units intramuscularly daily and 10,000 units intrapleurally a day. The sensitivity of the organism must, however, be taken into account. Intrapleural administration of the drug should not be discontinued before the disappearance of the exudate or before it has become sterile. Intramuscular dosage is indicated until there has been lasting improvement of the general condition. Streptomycin was administered according to the same principles. Sulfonamides were given periodically, in doses of 0.20 Gm. per kilogram of body weight. Surgical intervention could be avoided in all but two cases.

Complications were less frequent and less grave than before the era of antibiotics. The results were favorable, for among the 36 infants only six died. Empyema is considered as a manifestation of septicemia, and all measures indicated for controlling septic states are recommended in its therapy.

FROM THE AUTHOR'S SUMMARY.

Diseases of Gastrointestinal Tract, Liver and Peritoneum

INTESTINAL EMPHYSEMA IN INFANTS: A REVIEW OF THE LITERATURE, WITH SEVENTEEN NEW CASES REPORTED. D. JOSEPH JUDGE, JOHN E. CASSIDY and E. CLARENCE RICE, Arch. Path. **48**:206 (Sept.) 1949.

Intestinal emphysema, first described as a clinical entity by Bang in 1876, has been infrequently reported in the literature. It is also known as emphysema intestinorum, gas cysts of the intestines, diffuse emphysema of the intestinal wall and "pneumatosis cystoides intestini." The disorder is sporadic, and sex, race, climate, season and geography have not been noted to have any correlation with the incidence. The cause is obscure, but the condition is usually associated with a basic gastrointestinal disorder associated with ulceration.

Various theories postulate (1) bacteria, (2) mechanical means, (3) neoplasms, (4) hematomas, (5) local changes in fat embolism and (6) parasites as causes. No conclusive bacteriologic studies have been reported. The clinical picture is not one of a gas-forming infection, and the gas recovered from the cysts is mostly oxygen, which is not in keeping with bacterial infections. The mechanical theory states that an increase in the intraluminal pressure occurs, and then a break in the mucosa takes place, from either gaseous overdistention or localized infection of the mucosa. The gas may then spread through the lymphatic channels or be disseminated through the tissues. The authors advocate a probable combination of bacterial and mechanical factors. The diagnosis of pneumatosis is usually made only at autopsy, since symptoms of the gastrointestinal disorder supersede all other signs. However, the sensation of crepitus on palpation of the abdomen, with a peculiar tympany on percussion, has been described. Typical roentgenogram findings have been noted by some investigators. Translucent areas of gas are seen in the contour of an otherwise normal-appearing bowel. When a contrast medium is used, there is inability to fill the lumen, giving the impression of a filling defect. Data from 17 cases of intestinal emphysema (of 501 autopsies performed at the Children's Hospital in Washington, D. C.) are presented. All the patients were under the age of 8 months. Nine of the cases occurred in the months of March and April. All cases were in some stage of ulcerative ileocolitis. Antemortem and postmortem blood cultures were not significant except for the recovery of Salmonella in two instances. All patients had temperatures ranging up to 105 F.; 15 had respiratory tract infections; two had severe infectious diarrhea. Vomiting and diarrhea were prominant symptoms. Pathologic findings in these cases were similar in appearance and location to those described in the literature. Grossly, the involved bowel appeared like "sponge rubber." The cysts involved all layers of the intestinal wall and varied markedly in size. The cysts had no endothelial linings. Moore points out that in children the cysts are predominantly in the mucosa and submucosa, whereas in adults the cysts are more commonly found in the serosa. Definite proof of the duration of pneumatosis cannot be given, but the authors find the pathologic alterations appearing older than a few hours and do not believe the condition is due to postmortem changes.

HAW CHAN, San Francisco.

FACTORS CONTRIBUTING TO LOW MORTALITY FROM APPENDECTOMY FOR ACUTE APPENDICITIS. ARTHUR B. MCGRAW, Arch. Surg. **58**:171 (Feb.) 1949.

The experience in the Henry Ford Hospital, Detroit, with acute appendicitis for the 10 year period from 1938 through 1947 has been reviewed in an effort to seek lessons that may continue to be applied toward holding the mortality rate among patients treated for this disease at or close to the zero point. The over-all hospital mortality for the entire series was 0.64 per cent (nine deaths) for 1,411 cases. Data regarding the clinical material, the type of operation used, postoperative care, complications and mortality have been presented and analyzed. The author concludes that in spite of the indisputable help of the sulfonamide and antibiotic drugs, the prime factors in the elimination of mortality in acute appendicitis are (1) the alertness with which symptoms and signs of the disease are recognized, (2) the promptness with which the patient is brought to operation after diagnosis and (4) the consistent use of an operative technic which is sound in conception and safe in detail for the difficult as well as for the uncomplicated case.

KAISER, Rochester, N. Y.

PRELIMINARY OBSERVATIONS OF THE ANTI-DIURETIC SUBSTANCE RECOVERED FROM THE URINES OF PATIENTS WITH CIRRHOSIS OF THE LIVER. GEORGE H. STUECK JR., STEPHEN H. LESLIE and ELAINE P. RALLI, Endocrinology **44**:325 (April) 1949.

In 1945 Ralli and associates reported an increase in the amount of antidiuretic substance present in the urine of patients with cirrhosis of the liver and ascites. Studies of this substance in the urine of patients with cirrhosis of the liver are reported here. Whereas the authors do not define the nature of the antidiuretic substance present in urine, they do establish the facts that such a substance is present, that its antidiuretic effect when injected into rats is similar to that of commercial vasopressin injection (pitressin) and that ordinary methods of dialysis may result in the loss of varying amounts of the material.

JACOBSEN, Buffalo.

CAUSTIC STRICTURES OF THE ESOPHAGUS. PAUL H. HOLINGER and KENNETH C. JOHNSTON, Illinois M. J. **98**:246 (Oct.) 1950.

An analysis of 96 consecutive cases of caustic burn of the esophagus is presented. An analysis of the types of caustic agent ingested, the age groups, sex and race incidence is given. Most cases occur in children and are accidental, the caustic being placed in a container ordinarily used for food or drink, such as a glass, cup or soft drink bottle. Acute burns constituted approximately one third of the cases, while in the remaining two thirds, the patients were first examined only after multiple strictures had developed. Most significant is the recent change in the management of the acute burn, dilatation being begun within 24 hours of the accident by means of soft rubber mercury-filled bougies. No strictures have developed in the patients so treated during the three years this treatment has been used, and no complications, such as perforation, have developed. Once a caustic has been swallowed, dilatation or some form of esophageal examination must be continued throughout the life of the patient at increasing intervals. Failure to continue management when swallowing function is restored, either initially or in later years, results in cicatricial contracture of the severest type, for which gastrostomy, multiple dilatations or esophageal resection may have to be done.

FROM THE AUTHORS' SUMMARY.

PERITONITIS DUE TO INGESTION OF GLASS CHIPPED FROM BABY-FOOD CONTAINER. JOHN S. HYDE, J. Pediat. **34**:219 (Feb.) 1949.

A glass chip from a baby food jar perforated the intestine and produced peritonitis in a 13 month old infant. The fragment was finally passed in the stool. The infant recovered after laparotomy and the use of penicillin, sulfathiazole and streptomycin.

MACDONALD, Pittsburgh.

INTUSSUSCEPTION IN INFANTS AND CHILDREN. MARK M. RAVITCH and ROBERT M. MCCUNA JR., J. Pediat. **37**:153 (Aug.) 1950.

The authors present a detailed and exhaustive analysis of intussusception in children observed at Johns Hopkins Hospital from 1889 to 1948. Prompt diagnosis and treatment are essential

to a lowered mortality rate. Parenteral fluids and blood have priority over definitive treatment, especially in late cases. They advocate radiologically controlled hydrostatic pressure reduction of the intussusception followed by operation, if necessary, to confirm reduction or to complete the reduction if the intussusception persists.

Barium is used. Under fluoroscopy, a Foley bag catheter with 45 cc. balloon is inserted into the rectum and the balloon distended. The catheter is not greased, so that it may be less readily expelled, and an assistant maintains pressure on the buttocks throughout the procedure. The reservoir, containing a thick suspension of barium, is elevated 3 feet (91 cm.) above the table, and the barium is allowed to run into the bowel. The observer may then watch the reduction of the intussusception. Successful reduction is indicated by the following criteria: (1) entrance of barium well into the small bowel, (2) return of the barium with feces or flatus, (3) disappearance of the mass, (4) immediate clinical improvement and (5) subsequent recovery in the stool of charcoal given by mouth or the appearance of a blood-free stool.

If reduction is incomplete or uncertain, operation may be required. If resection is necessary, better results are obtained by enterostomy, with or without primary anastomosis.

The authors have treated 48 patients; 33 reductions by enema alone, 14 reductions by enema to the cecum or ileocecal valve and 1 to the ascending colon were completed at operation. There were no deaths.

MACDONALD, Pittsburgh.

VIRUS HEPATITIS IN INFANCY. ALFRED S. TRAISMAN and ROBERT C. WHEELER, J. Pediat. **37**:174 (Aug.) 1950.

Infectious hepatitis and homologous serum hepatitis are relatively benign in the older child. They seldom occur in infants, but when they do they are very serious and sometimes rapidly fatal. The authors report nine cases of virus hepatitis, collected in 15 years, at Children's Memorial Hospital, Chicago. One of these followed treatment with human serum. In the last case and in three others the patients died. Jaundice and hepatomegaly were constant findings. In three patients the enlarged livers became smaller terminally. Two patients showed splenomegaly, and two showed a moderate generalized adenopathy. It is interesting that three of the patients with infectious hepatitis had a leukocytosis, two of these showing a marked lymphocytosis. This is in contrast to the findings in adults, for whom leukopenia is common.

MACDONALD, Pittsburgh.

LOCAL EMETIC ACTIVITY OF GLYCOSIDES OF THE DIGITALIS SERIES. HARRY GOLD, MCKEEN CATTELL, WALTER MODELL, THEODORE GREINER and ROMULO GUEVARA, J. Pharm. & Exper. Therap. **98**:337 (April) 1950.

The authors had observed in the assay of digitalis in humans that one of five patients who received a fairly large single dose of digitalis leaf or the tincture showed nausea and/or vomiting within an average period of somewhat less than two hours, long before any considerable systemic action had developed. They therefore studied the different active digitalis glycosides and found the ouabain had by far the least local emetic action. The clinical implications of their study are (1) that vomiting in some cases commonly ascribed to a systemic action may be due to a local action, even though small repeated oral doses are used and vomiting occurs after many hours; (2) that in some cases greater cardiac action may be possible without vomiting after parenteral doses than after oral doses, and (3) that a counterpart in man of the widely different local emetic activities observed in the animal experiments may provide an additional basis for choice of a digitalis material in therapeutics.

PILCHER, Cleveland.

CHLOROMYCETIN IN THE TREATMENT OF SALMONELLA ENTERITIS. SIDNEY ROSS, FREDERIC G. BURKE, E. CLARENCE RICE, JOHN A. WASHINGTON and SARA STEVENS, New England J. Med. **242**:173 (Feb. 2) 1950.

Seven white children and two Negro children ranging in age from 2 to 24 months were treated with chloramphenicol (chloromycetin®) for Salmonella enteritis. The bacteriologic method of study and the specific organisms isolated are presented. The superiority of Kauffmann's tetrathionate broth as an isolation medium is suggested. Chloramphenicol, 110 to 480 mg.

per kilogram per 24 hours, was given, with levels of 3.8 to 180 micrograms per cubic centimeter resulting. The drug was given in divided doses, every four hours, and the suitable vehicles for this bitter drug are listed. Anorexia was the chief unfavorable side effect of drug therapy.

All nine patients recovered clinically so far as cessation of diarrhea and improvement in nutrition was concerned, but the specific effect of the chloramphenicol was difficult to evaluate. In only two patients was permanent absence of Salmonella obtained; in the seven others, a transitory inhibitory effect was seen, only to be followed in five to 40 days by a return of the pathogen in the stools.

A comparison between the preceding cases and eight cases of Salmonella enteritis treated with streptomycin is presented. Neither drug is capable, apparently, of effecting a permanent bacteriologic cure in the majority of cases.

WHEELOCK, Denver.

ABDOMINAL EMERGENCIES IN INFANCY AND CHILDHOOD. MERRILL W. EVERHART, New Orleans M. & S. J. **102**:361 (Jan.) 1950.

Abdominal emergencies are reviewed, with the exception of trauma, tumors and poisoning. The author includes infections, hemorrhage and obstruction. Differential diagnoses are discussed briefly.

McGUIGAN, Evanston, Ill.

CARDIO-ESOPHAGEAL RELAXATION (CHALASIA) AS A CAUSE OF VOMITING IN INFANTS. WILLIAM BERENBERG and EDWARD B. D. NEUHAUSER, Pediatrics **5**:414 (March) 1950.

Recurrent vomiting in the young infant may be due to a wide variety of causes. During a five year period of study, 24 patients have been observed and followed in whom the dysfunction was produced by a relaxation of the hiatal portion of the esophagus with failure of the normal "sphincter" action of the cardia. The condition has been termed "chalasia"—the opposite of achalasia.

This syndrome is produced by an autonomic imbalance of either vagal stimulation or sympathetic inhibition. Other, less likely, anatomic or physiologic abnormalities might also play an etiologic role.

Persistent vomiting usually starts within the first week of life and becomes progressively worse. It is most likely to occur when air is expelled or when the patient is in the supine position. Physical examination and other studies are invariably unrevealing. Fluoroscopic examination of the swallowing function with barium reveals persistent failure of the "pinchcock" action of the cardia. During inspiration, the esophagus dilates and fills with barium from the stomach. During expiration the filled esophagus is compressed. With the patient in the supine position, retrograde filling of the esophagus may be produced by an increase in intra-abdominal pressure.

All patients have responded well to an empiric regimen under which they are fed thickened feedings and kept in an erect position for a prolonged period thereafter. Repeat fluoroscopic examination some months later usually reveals no abnormality.

FROM THE AUTHORS' SUMMARY.

PLACE OF ORAL FEEDING IN INFANTILE DIARRHEA. ARTHUR W. CHUNG and L. EMMETT HOLT JR., Pediatrics **5**:421 (March) 1950.

Early oral feeding is recommended in infantile diarrhea not as a substitute but as a supplement to needed parenteral therapy. An analysis of pertinent data indicates the safety and value of this procedure.

FROM THE AUTHORS' SUMMARY.

STUDIES ON THE GELATIN-LIQUEFYING PROPERTIES OF CERTAIN BACTERIA, WITH PARTICULAR REFERENCE TO THE LABORATORY DIAGNOSIS OF CYSTIC FIBROSIS OF THE PANCREAS. DOUGLAS E. JOHNSTONE, Pediatrics **6**:351 (Sept.) 1950.

The gelatin film (the roentgen film used in routine practice) test for the demonstration of gelatin liquefaction of bacterial cultures and stool suspensions is described. Results are given

on tests of 179 strains of bacteria by this technic. Mixtures of gelatin-liquefying bacteria with saline suspensions of feces obtained from patients known to have cystic fibrosis of the pancreas gave positive reactions. Stool or duodenal juice cultures from seven proved cases of cystic fibrosis of the pancreas revealed heavy growths of gelatin-liquefying bacteria. The same specimens gave positive gelatin film tests.

FROM THE AUTHOR'S SUMMARY.

EFFECT OF PANCREATIN ON PLASMA VITAMIN A CURVES IN THE CELIAC SYNDROME. G. E. GIBBS, Pediatrics **6**:593 (Oct.) 1950.

Vitamin A concentrations of the plasma have been determined following administration of halibut liver oil with and without pancreatin in infants and children. Thirty-three patients with cystic fibrosis of the pancreas were so studied. Without pancreatin, the vitamin A concentration failed to rise. With pancreatin (in doses of 0.15 Gm. per kilogram), an average rise in vitamin A occurred, approximately 39 per cent of that found in normal control patients. No consistent effect of pancreatin was found in 10 cases of celiac disease.

FROM THE AUTHOR'S SUMMARY.

DUODENITIS IN CHILDHOOD. J. B. GILLESPIE and R. E. DUKES, Pediatrics **6**:601 (Oct.) 1950.

Six cases of duodenitis in childhood are reported, and the literature is briefly reviewed. Recovery was prompt and uneventful in all but one patient in this group. In this single instance, chronic duodenitis existed for a period of four years despite a medical regimen considered adequate. The possible presence of an inflammatory lesion of the duodenum should be considered in any child with vague or ulcerlike abdominal complaints. A clinical diagnosis can only be suspected, and roentgen studies of the stomach and duodenum are indicated in case of obscure gastric discomfort.

FROM THE AUTHORS' SUMMARY.

DIFFERENTIATION BETWEEN BACTERIAL AND TRYPTIC GELATIN LIQUEFACTION AS AID TO DIAGNOSIS OF FIBROSIS OF PANCREAS. DOUGLAS E. JOHNSTONE and ERWIN NETER, Proc. Soc. Exper. Biol. & Med. **74**:326 (June) 1950.

Certain bacterial species, particularly members of the genera Proteus and Pseudomonas, and fecal specimens from normal patients cause liquefaction of the gelatin coating on roentgen film, whereas there is no liquefaction with fecal specimens from patients with cystic fibrosis of the pancreas. An attempt was made to develop a test which may differentiate between gelatin liquefaction due to pancreatic trypsin and that due to bacterial enzyme. A soybean trypsin inhibitor (procured from Worthington Biochemical Laboratory, Freehold, N. J.) was used in the attempt to differentiate between bacterial enzyme and pancreatic trypsin. The soybean trypsin inhibitor regularly failed to inhibit liquefaction by isolated strains of Proteus ammoniae, P. morganii and Pseudomonas aeruginosa. Sixty-nine strains in all were studied. In contrast, inhibition of gelatin liquefaction occurred with 107 fecal specimens obtained from both children and adults and mixed with the trypsin inhibitor; this indicated that the gelatin liquefaction in the latter group was due to the presence of trypsin. Suitable preparations of zinc oxide, zinc peroxide and sodium perborate had no or only a slight effect on trypsin in feces but markedly inhibited the bacterial enzyme responsible for gelatin liquefaction.

HANSEN, Galveston, Texas.

PRESENCE OF SECRETIN IN CYSTIC FIBROSIS OF THE PANCREAS. G. E. GIBBS and LEON L. GERSHBEIN, Proc. Soc. Exper. Biol. & Med. **74**:336 (June) 1950.

The distribution of secretin was determined in a variety of control infants and also in four children with fibrosis of the pancreas. Autopsy findings were definite in all four cases, and secretin was found to occur in the upper part of the bowel of the four patients with cystic fibrosis of the pancreas in amounts comparable to those of controls. The hypothesis that a congenital absence or deficiency of secretin may be an etiological factor in cystic fibrosis of the pancreas appears to be untenable.

HANSEN, Galveston, Texas.

RECURRENT MIXED TUMOR OF THE CHEEK IN A GIRL AGED 1½ YEARS. M. M. KINAWI and S. M. AIDAROS, J. Roy. Egyptian M. A. **32**:69 (Jan.) 1949.

The authors report a case of mixed tumor of the parotid gland which first occurred when the patient was 2 months old. The child was operated on at 7 months. The tumor recurred after four months and was removed when the child was 18 months old. The authors have been unable to find a similar case reported for infants or children.

McGUIGAN, Evanston, Ill.

ORAL STREPTOMYCIN THERAPY IN ACUTE AND CHRONIC GASTRO-ENTERITIS. M. DIWANY, Z. N. ABDIN and A. OMAR, J. Roy. Egyptian M. A. **33**:593, 1950.

Sixty patients with severe gastroenteritis were treated with streptomycin orally. In all cases Escherichia coli was found on culture. Recovery of the patient was complete in three to 12 days in cases of acute disease. Chronic disease which had lasted one to six months and resisted all treatment responded in 90 per cent of the cases. Acute disease required a total dose of 1 to 3 Gm. over a period of three to 12 days. Chronic disease was treated over one to three weeks with 3 to 4 Gm.

McGUIGAN, Evanston, Ill.

DEVELOPMENTAL ANOMALIES OF THE ESOPHAGUS. JOSEFA LADANYI and SANDOR SZUCS, Ann. pædiat. **173**:1 (July) 1949.

In the teratogenic explanation of esophageal atresia, the mechanical theory, as presented by Happich, Keith, Zausch and J. A. Schmitz, is recently coming more to the fore. The authors agree with this explanation, because in the three cases of esophageal atresia in combination with esophagotracheal fistula observed by them there was further found in each case an open foramen ovale; in addition, in one case an open ductus arteriosus was found; in another, atresia ani vaginalis, and in the third, a stenosed rectum. These findings cannot in any way be explained by the occlusion theory brought forward formerly by Tandler and Kreuter, but they appear much more to be caused by pressure, which may be common in all cases.

From a review of the development of the operative technique it can be seen that the most complex problem is not to have the patient get over the difficulty of swallowing but to mend the fistula coexistent with the atresia that even after gastrostomy may lead to regurgitation of food and to its aspiration.

FROM THE AUTHORS' SUMMARY.

INFLUENCE OF ADRENAL CORTEX ON SUGAR METABOLISM IN CELIAC DISEASE. L. BARTA and I. VINCE, Ann. pædiat. **173**:17 (July) 1949.

The sugar metabolism was investigated in two cases of celiac disease, and how it was influenced by the hormone of the adrenal cortex was also studied. In both cases a flat blood sugar curve followed after an intake of dextrose which was twice as large as the usual dose, while in one of the cases the Staub-Traugott effect was missing. The blood sugar curves after administration of dextrose intravenously were normal. After treatment with adrenal cortex hormone, normal steep curves were obtained, with pronounced Staub-Traugott effect. The authors have therefore concluded that the disturbance of the carbohydrate metabolism in celiac disease is founded on a deficient sugar resorption. The removal of this disturbance through the hormone of the adrenal cortex is only one factor in the treatment; a cure cannot be achieved by the hormone alone.

FROM THE AUTHORS' SUMMARY.

COMPARATIVE INVESTIGATIONS WITH REGARD TO RECTAL ABSORPTION OF CALCIUM SALTS OF MAN. H. BRAUN, Schweiz. med. Wchnschr. **79**:103 (Feb. 5) 1949.

Calcium gluconate alone or together with calcium levulinate, as well as calcium lactate, were given in suppositories containing 120 mg. of calcium each. An increase in the calcium level of the blood, 3.5 to 18 per cent more than that found in the control test, was noted.

AMBERG, Rochester, Minn.

MALIGNANT TUMORS OF THE GASTROINTESTINAL TRACT IN THE YOUNG. HYMAN I. GOLDSTEIN, Schweiz. med. Wchnschr. **80**:1033 (Sept. 23) 1950.

This paper gives a rather loose review of the literature for the past century that pertains to malignant tumors in the young from the newborn period to about 30 years of age. The author concludes that malignancy of the gastrointestinal tract in children and young adults is not so rare as has been supposed.

AMBERG, Rochester, Minn.

THE PATHOGENESIS AND TREATMENT OF HABIT VOMITING IN INFANTS. V. BAFFI, Pediatria **57**:373 (May) 1949.

Five cases are reported of infants in whom an almost intractable habit vomiting was associated with an enlarged thymus gland. X-ray therapy and the giving of cortical extract proved to be efficacious.

HIGGINS, Boston.

Nervous Diseases

SPINAL SUBDURAL ABSCESS DUE TO A CONGENITAL SINUS AND ACCOMPANYING CHANGES IN THE AUTONOMIC NERVOUS SYSTEM. ARTHUR B. KING and CURT P. RICHTER, Bull. Johns Hopkins Hosp. **85**:431 (Dec.) 1949.

King and Richter report the case of a patient who was born with an intradural dermal sinus in the lower lumbar and sacral parts of the spinal canal. It drained freely through an opening between the fourth and the fifth lumbar vertebra. At the age of 4 mo. the sinus became infected, and at the age of 7 mo. the excision of the extradural part occluded the sinus and blocked the drainage from the intradural portion. The resulting increase of pressure must first have caused the sinus to become very distended, and later may have caused it to rupture, allowing the enclosed pus to spread freely through the subdural space. Pressure from the abscess and/or local inflammatory action on the spinal roots produced widespread asymmetric changes in the motor, sensory, and autonomic nervous system. Below the 11th and 12th thoracic dermatomes the effects were bilateral; above, strictly unilateral.

At the end of the first year drainage of the sinus and treatment with penicillin brought almost immediate relief. The child quickly became able to walk and to carry on many activities. Two years later, when all the infection had subsided, the intradural part of the sinus was readily removed, but some of the sacral roots may have been injured in the process. The child made a rapid recovery. Sympathetic, motor, and sensory changes were still present, however, mainly on the right side of the now 5-yr.-old child.

Examinations of electrical skin resistance showed that the effects produced by the subdural abscess on the sympathetic nervous system were strictly unilateral. No deviation from normal levels of resistance were observed at any time on the left side of the body, in spite of the presence on that side of definite alteration in sensory and motor functions. The effects produced on the sympathetic nervous system were, in this case, long lasting, being present even after 5 yr., though in greatly diminished intensity. They persisted longest in the head and upper thoracic region, the parts of the body farthest removed from the site of the sinus. It is noteworthy that these changes were present in the absence of any abnormalities of the sensory and motor system in this part of the body. The plantar surface of the right foot showed an area with an apparently permanent sympathetic denervation.

ALPERS, Philadelphia [ARCH. NEUROL. & PSYCHIAT.].

HEREDOFAMILIAL CEREBELLAR ATAXIA WITH SPASTIC PARALYSIS AND SPINAL MUSCULAR ATROPHY: REPORT OF TWO CASES OF AN UNUSUAL SYNDROME. EDWIN DENNIS KILBOURNE, J. Nerv. & Ment. Dis. **109**:409 (May) 1949.

Kilbourne reports the cases of two siblings with a hereditary familial disease of the nervous system regarded as a variant of the Charcot-Maria-Tooth and Friedreich types of disorder. Both patients had a relatively normal developmental history until the age of 13, except that the first, a man aged 25, had had one febrile convulsion at the age of 15 mo. At the age of 5 yr. he spoke rapidly and explosively and tended to walk on his toes. This speech difficulty

increased at the age of 13, when his hands became clumsy. His legs began to be spastic and his extremities weak at 17 yr. Fasciculations of the legs developed at the age of 22. Examination disclosed pronounced lordosis; spastic-ataxic gait; garbled, explosive, nasal speech; facial grimacing; atrophic extremities; fasciculations of the arms, chest, and legs; incoordination of the arms and legs; increased resistance to passive stretch in both arms and legs and pes cavus. Reflexes and sensory modalities were intact.

In the other patient, a single woman aged 29, progressive speech difficulty, ataxia, and weakness of the legs appeared at the age of 13. As her disability increased, her personality became distorted, so that she was suspicious, irritable, and subject to frequent tantrums of rage. Examination revealed poor physical development, with symmetrically wasted extremities. The gait was spastic-ataxic on a wide base, with falling to the right with eyes open or closed. The speech was nasal, explosive, slurred, and accompanied with grimacing. The muscles of the trunk and extremities were atrophic, weak, and incoordinate in rapid alternating movements. Fasciculations and increased resistance to passive stretch were evident in the left arm. Sensory modalities were normal. The reflexes were increased, and there was an inconstant Babinski sign on the right.

Laboratory studies revealed nothing abnormal. Two paternal uncles had a similar condition. The two patients whose cases are reported resemble the father, while two other siblings, who resembled the mother, were not affected.

FARMER, Philadelphia [ARCH. NEUROL. & PSYCHIAT.].

TREATMENT OF HYDROCEPHALUS BY VENTRICULOMASTOIDOSTOMY. WILLIAM A. NOSIK, J. Pediat. **37**:190 (Aug.) 1950.

Nosik has devised an operation for hydrocephalus in which a fluid pathway is established from the temporal horn of the lateral ventricle into the antrum of the mastoid. This is accomplished by connecting the two structures with a section of polyethylene tubing to which a tantalum tip is attached. The plastic tubing is inserted into the ventricle and the tantalum tip into the antrum. Cerebrospinal fluid then flows from the lateral ventricle into the antrum of the mastoid, through the atrium and the middle ear, down the Eustachian tube to the nasopharynx. It is believed that the constant outward flow of fluid decreases the hazard of retrograde infection. Nine patients have been operated on, with survival times from several months to three years. In one patient a mild meningitis developed one month postoperatively, although a satisfactory drainage had not been established.

MACDONALD, Pittsburgh.

THE HEART IN FRIEDREICH'S ATAXIA. M. EUGENE FLIPSE, THOMAS J. DRY, and HENRY W. WOLTMAN, Minnesota Med. **33**:1000 (Oct.) 1950.

The authors report the presence of hereditary sclerosis, spinal form (Friedreich's ataxia), in two brothers, both of whom showed marked changes on electrocardiographic examination. The authors felt that the cardiac abnormalities associated with the sclerosis are due to a diffuse myocarditis. The cause of this myocarditis is unknown but is probably of toxic origin.

STOESSER, Minneapolis.

HYDRANENCEPHALY: CLINICAL DIAGNOSIS: PRESENTATION OF SEVEN CASES. WALLACE B. HAMBY, RUTH F. KRAUSS, and WILLIAM F. BESWICK, Pediatrics **6**:371 (Sept.) 1950.

Hydranencephaly, an autopsy curiosity, has become recognizable clinically, and seven cases have been identified in two years in a children's hospital. The malformation consists of practically complete replacement of the cerebrum by fluid within intact meninges in a normal or enlarged skull. Diagnosis can be made early by (1) recognition of a characteristic clinical pattern, (2) transillumination of the head, (3) a flat line electroencephalogram tracing, (4) fontanel puncture and, if necessary, (5) a characteristic ventriculogram. Diagnosis is important for prognosis and not for therapy.

FROM THE AUTHORS' SUMMARY.

PROGRESSIVE FIBRINOID DEGENERATION OF FIBRILLARY ASTROCYTES ASSOCIATED WITH MENTAL RETARDATION IN A HYDROCEPHALIC INFANT. W. S. ALEXANDER, Brain **72**:373, 1950.

Alexander describes the clinical and anatomic characteristics of a case of nonfamilial idiopathic cerebral sclerosis with fibrinoid degeneration of fibrillary astrocytes. The patient, a

15-mo.-old boy, was retarded in development. His skull measured 50 cm. in circumference, having increased 2.5 cm. during the month before admission. Neurological examination revealed only bilateral extensor responses to plantar stimulation. Necropsy revealed thrombosis of the cerebral venous sinuses. A greatly dilated cavum septi pellucidi bulged into the lateral ventricles, apparently compressing the foramens of Monro, with resulting moderate dilatation of the lateral ventricles. Histological studies of the liver showed foam cells, containing a doubly refractile lipid in the parenchyma.

In all sections of the central nervous system were large numbers of homogenous fuchsinophilic bodies in the form of elongated rods, which were arranged radially around the walls of blood vessels in the white matter or perpendicularly to the surface of the brain in the subpial zone, but the cortex was spared. These bodies were similar in histological characteristics to the bodies seen in astrocytomas, especially the fibrillary type occurring in the third ventricle and the cerebellum in children. The astrocytes in the preparations showed varying degrees of degeneration. The authors state that "the morphology of the astrocytes in specific preparations provides definite evidence that these 'bodies' have resulted from degeneration of these cells and their processes."

FRENKEL, Philadelphia [ARCH. NEUROL. & PSYCHIAT.].

THE SYNDROME OF PYRAMIDAL IRRITATION: AN ATTEMPT AT HIERARCHAL CLASSIFICATION OF CLINICAL SIGNS. G. A. MANCEAUX, J. ROBERT D'ESHOUGES and M. JORDA, Encéphale **38**: 460, 1949.

One of the most valuable signs of a pyramidal lesion is the dissociation of a decreased or an abolished cutaneous reflex and the exaggerated tendon or bone reflex. The cutaneous reflexes are under cortical control by way of the pyramidal tracts. The tendon reflexes are under the control of the red nucleus by way of the rubrospinal tract. This subcortical system is physiologically inhibited by the higher, corticopyramidal, system. Thus the absence of cutaneous reflexes is a direct, negative sign, whereas the increase in tendon reflexes is an indirect, positive sign, which betrays the liberation of lower centers.

Believing that their French colleagues are not sufficiently aware of the importance and value of the different elements of the syndrome of pyramidal irritation, the authors emphasize, recall, and reclassify such signs. They divide the signs into three groups—those at the level of the superior member, the inferior member, and the face.

Thus, for the lower limb they discuss the reflexes of Babinski, Mendel and Bechterew, Rossolimo, and Gonda; the tibiofemoral reflex of Guillain and Barre; the posterior peroneofemoral reflex; the adductor sign of Sternberg, and others. For the upper limb, they discuss the biceps, radial, triceps, and cubitopronator reflexes, as well as the Hoffmann, Starling, Lesny-Vitek, and Lerí signs. At the level of the face, they rely on the masseter reflex (jaw reflex) and the "cranial" reflex (reflex of the frontal aponeurosis). The article is a brief review of the commonly sought reflex signs, many of which have only doubtful value as compared with those which are considered standard for eliciting evidence of pyramidal involvement.

ZINKIN, New York [ARCH. NEUROL. & PSYCHIAT.].

DETERMINATION OF THE REDUCING POWER OF THE CEREBROSPINAL FLUID BY THE METHOD OF MESTREZAT. L. PERALE, Clin. pediat. **32**:379 (July) 1950.

Mestrezat's method of determining the sugar content of spinal fluid involves the precipitation of the protein by sodium tungstate before determining the reducing power, because albumin may combine with the copper solution and render the analysis inaccurate. This procedure is unnecessary unless the spinal fluid protein exceeds 0.04 per cent.

HIGGINS, Boston.

Psychology and Psychiatry

THE INFLUENCE OF THE PERTURBATIONS OF CHILDHOOD LIFE UPON THE OCCURRENCE OF APPENDECTOMY. GRIFFITH BINNING. Canad. M. A. J. **63**:461 (Nov.) 1950.

The author studied 263 children who had had appendectomies. He found that tonsillectomy was twice as frequent in this group as in a control group. Nearly 70 per cent of children who

have appendectomies will have tonsillectomies while of school age, whereas only 25 to 30 per cent of children who have not had appendectomies will have their tonsils removed. Stressful events were twice as common in children necessitating appendectomy as were other diseases of the adaptation syndrome. The mechanism by which stress situations may end in appendicitis is reviewed.

McGuigan, Evanston, Ill.

Hereditary Syndrome of Sjögren: Mental Deficiency and Cataract. L. Guillaumat, P. Surugue and H. Chabat, Bull. Soc. opht. Paris, May-June 1948, p. 244.

Two brothers, aged 13 and 14, had noticed a varying degree of diminution in vision for about three years. General physical examination revealed a similar condition; they were both undersized and underweight. Their extremities were cyanosed, and each had a pigmented patch in the lumbar region. Caries, dental malformation, and dental malposition, with normal mucous membranes, and salivation, were observed. Stigmas of hereditary syphilis were noted. In the older child visual acuity in each eye was limited to perception of hand movements at 30 cm., with bilateral luxated opaque lens and iridodonesis. The second child had visual acuity of 1/10 in the right eye and 3/10 in the left eye, with photophobia. Factors of hereditary disease in the patients and their antecedents and collaterals are given in detail.

L. L. Mayer [Arch. Ophth.].

Children's Dreams. Guido Noccioli, Riv. clin. Pediat. **48**:833 (Dec.) 1949.

The author, after careful research made on 174 children, points out the characteristics of children's dreams, showing which particularities of this psychological examination may be exploited in the field of pediatric practice.

From the Author's Summary.

Infantile Sexuality and the "Oedipus Complex." Luis S. Granjel, Acta pediat. españ. **91**:763 (July) 1950.

Granjel discusses the oedipus complex as elaborated by Freud and also gives the comments of the various psychiatrists who deny the validity of Freud's concept and of those who accept it. Granjel believes an oedipus complex is present in a large number of neurotic families, not on a biological basis but rather on a cultural one.

In the Western European culture, with the patriarchal type of society, the child is almost entirely cared for by the mother, and the father intervenes only to correct or make demands. The author believes an entirely different relation might exist in a matriarchal society and states that the taboos are entirely different in a primitive society.

The author believes the normal child should be studied in his own environment. In such cases the child will be found to be egocentric and motivated by the "feeding impulse" and early developing differentiation between pain and pleasure. In his own cultural level he learns the taboos taught him, and a mother fixation and a dislike for his father may develop and may cause conflict in later life. The mother may prolong a child's dependence on her, and the father may act in such a way as to keep his son from identifying himself with his father; parents should be made to understand the injury this does to the child. The development of an oedipus complex is therefore not a normal biological process but a grievous error on the part of the mother in her emotional attitude toward her son.

This, the author believes, is an important sociological and education problem, rather than a medical one. Once a child has acquired this type of complex, however, he needs professional psychiatric care for his reeducation. The pediatrician as adviser to the mother during the early years may do much to prevent the development of this condition.

Allen, Santa Fe, N. M.

Neurological and Environmental Factors in the Determination of Certain Mental and Emotional Aberrations. M. Schachter, Acta pediat. españ. **92**:901 (Aug.) 1950.

Schachter presents the case histories of two adolescent boys who had emotional and behavior problems at school. One had been diagnosed as a psychopathic personality, the other as having mild mental and physical retardation.

When the complete history was obtained, it was discovered that both had had meningitis during the first years of life, as well as numerous other infectious diseases, although there was no family history of syphilis or tuberculosis. The family history also revealed alcoholism in one parent, and the child was born when his mother and father were older than the usual parents. In both cases there were extreme maternal anxiety, overprotection and insufficient preparation for school life.

Both improved on (1) environmental change to special schools, (2) careful explanation and reeducation of parents in their attitudes and (3) small doses of thyroid extract and glutamic acid. Physical development in both were retarded in certain points.

ALLEN, Santa Fe, N. M.

Diseases of Genitourinary Tract

ALBUMIN THERAPY IN NEPHROSIS. ENRIQUE GALAN, OTTO GARCIA, MANUEL PEREZ ESTABLE, ORLANDO GARCIA FAES, ELISEO PRADO, and GILBERTO ALFONSO, Pediatrics **6**:743 (Nov.) 1950.

Twelve nephrotic children were treated with intravenous injections of low-sodium concentrated human plasma albumin. Favorable response, as judged by the decrease in weight and edema and the increase in diuresis, was seen in only five cases. Lack of therapeutic effect on nephrotic edema was due in the majority of cases to the great urinary loss of injected albumin and to the inability of the kidney to excrete the edema fluid mobilized into the circulation by the osmotic effect of albumin.

FROM THE AUTHORS' SUMMARY.

ACUTE AND SUBACUTE GLOMERULONEPHRITIS MODIFIED BY ADRENOCORTICOTROPIN. EDITH B. FARNSWORTH, Proc. Soc. Exper. Biol. & Med. **74**:57 (May) 1950.

Three patients with glomerulonephritis were given adrenocorticotropic hormone (ACTH). In the first case a 12 year old girl with subacute glomerulonephritis and rheumatic heart disease of six weeks' duration was given 27 mg. daily of ACTH and later 50 mg. Hematuria, azotemia and hypertension disappeared. In the second case a 9 year old girl with a history of rheumatic heart disease and glomerulonephritis of five months' duration was also given ACTH, with a decrease in hematuria, a drop in blood pressure and a decrease in the nonprotein nitrogen level of the blood resulting. Hematuria, however, redeveloped soon after the patient returned home. In the third case a 5 year old girl with acute glomerulonephritis was given 40 mg. daily of ACTH, with a decrease in the symptoms and an improvement of her condition. The follow-up period was not long enough for complete evaluation. The authors conclude that hematuria, azotemia and hypertension associated with the acute phases of glomerulonephritis can be favorably modified by activation of the adrenal cortex with ACTH.

HANSEN, Galveston, Texas.

METABOLIC CHANGES ASSOCIATED WITH ADMINISTRATION OF ADRENOCORTICOTROPIN IN THE NEPHROTIC SYNDROME. EDITH B. FARNSWORTH, Proc. Soc. Exper. Biol. & Med. **74**:60 (May) 1950.

Eight patients suffering with the nephrotic syndrome for over three months were given adrenocorticotropin. These subjects varied in age from 3 to 37 years. Six were males. The daily dose, from 40 to 120 mg., was given in divided doses, every six hours. The majority of patients manifested a more or less marked increase in edema during the administration of adrenocorticotropic hormone (ACTH). In five patients, within a short period varying from a few hours to three days, there was a diuresis characterized by a loss of weight, 17 pounds (7.7 Kg.) in a 7 year old and 40 pounds (18 Kg.) in a 17 year old. One patient failed to initiate diuresis during two courses of treatment, but after the tenth day of the third course she regained her normal weight within four days while still receiving medication. One 3 year old boy and the 37 year old man had no significant diuresis. In all instances the amount of ACTH was sufficient to suppress the circulating eosinophils. Three of the patients were given the drug for intervals of six to eight weeks. The authors conclude that an appropriate stimulus to the

adrenal cortex by the administration of adrenocorticotropin is capable of producing marked modifications in the nephrotic syndrome. These modifications include reduction in serum cholesterol and urinary protein, increase in serum protein and profound diuresis. With one exception, the diuresis occurred after discontinuance of ACTH therapy, and the improvement in nitrogen balance and serum values continued for several weeks.

HANSEN, Galveston, Texas.

ETHYLENEDINITRILOTETRAACETIC ACID AS A SOLVENT FOR URINARY CALCULI. SAMUEL RAYMOND and ROBERT F. GEHRES, Proc. Soc. Exper. Biol. & Med. **74**:715 (Aug.) 1950.

Ethylenedinitrilotetraacetic acid (Bersworth Chemical Company, Framingham, Mass.) forms stable chelate complexes with a number of metal ions, including calcium. The authors find that neutral aqueous solutions of this reagent dissolve urinary calculi rapidly. Urinary calculi are composed principally of calcium, oxalate, urate, phosphate and carbonate, with other salts and organic matter. One stone composed of cystine, with no calcium present, was unaffected by the acid. The authors propose the name "calsol" for this acid. A 3 per cent calsol solution adjusted to pH 7.5 was compared with a 3 per cent sodium citrate solution in regard to the solvent action on 44 pairs of stones from 44 patients. The stones were individually immersed in the solution for 24 hours and the percentage losses in weight determined. In each pair of stones, the calsol-treated stone lost substantially more weight than the citrate-treated stone. The citrate solutions show satisfactory solvent action against the phosphate-carbonate type. The calsol solutions dissolve all types of stones. The authors are continuing intensive laboratory and clinical study of the calsol solutions.

HANSEN, Galveston, Texas.

NEW IDEAS ON PATHOGENESIS AND TREATMENT OF NOCTURNAL ENURESIS. S. QUADRI, Clin. pediat. **31**:37 (Jan.) 1949.

In the treatment of persistent nocturnal enuresis, use was made of the drugs phenylisopropylamine and diphenylhydantoin sodium to render the child's sleep less sound.

HIGGINS, Boston.

Diseases of Ductless Glands; Endocrinology

ON THE NATURE OF THE HYPERTROPHIED PITUITARY GLAND INDUCED IN THE MOUSE BY I^{131} INJECTIONS, AND THE MECHANISM OF ITS DEVELOPMENT. R. C. GOLDBERG and I. L. CHAIKOFF, Endocrinology **48**:1 (Jan.) 1951.

A single injection of radioactive iodine in mice may cause the pituitary gland, with normal weight of 2 mg., to enlarge to as much as 200 to 240 mg.

Results of experiments here reported confirm this and show that the enlargement is limited solely to the anterior lobe. Microscopic examination of the anterior lobe revealed a benign hypertrophy and hyperplasia of the basophilic cells. The hypertrophy and cytological changes induced in the anterior lobe by the I^{131} injections were prevented by the feeding of desiccated thyroid. It is concluded that the enlargement resulted from the hypothyroidism which followed the destruction of the thyroid by the ionizing radiation.

JACOBSEN, Buffalo.

MAINTENANCE OF PREGNANCY IN INTACT RABBITS IN THE ABSENCE OF CORPORA LUTEA. M. C. CHANG, Endocrinology **48**:17 (Jan.) 1951.

It is well known that the secretion of the corpus luteum, progesterone, plays an important part in the proliferation of the uterine endometrium, the growth and implantation of the ovum, the formation of the placenta and the maintenance of pregnancy. In the rabbit, removal of the corpora lutea interrupts pregnancy, while the administration of luteal extract (or progesterone) maintains gestation right up to the full term in the ovariectomized animals. Whether or not pregnancy can be maintained in an intact, nonovulated animal by the administration of progesterone has not previously been determined. The possibility of such maintenance can be investigated only by transferring fertilized ova into a nonovulated animal. Such experiments were successfully carried out. Details of results with varying dosages of progesterone are given.

JACOBSEN, Buffalo.

ESTROGEN AND ALKALINE PHOSPHATASE ACTIVITY IN THE GENITAL TRACT OF THE MALE MOUSE. HOWARD A. BERN, Endocrinology **48**:25 (Jan.) 1951.

Recently considerable attention has been focused on the hormone-enzyme relation by several groups of investigators using histochemical and cytochemical methods. The hormonal control of phosphatase activity in several areas of the male genital tract has been studied, and it is suggested that castration of male mammals results in at least partial loss of phosphatase activity from the genital tract, which can be restored by androgen replacement therapy. The present study was undertaken to determine the effects of estrogen on alkaline phosphatase activity in genital tissues of the male mouse, using a cytochemical technic. Results indicate that estrogen administration maintains the normal localization of stromal alkaline phosphatase and thus may substitute for androgen.

JACOBSEN, Buffalo.

STUDIES ON THE RELATIONSHIP OF THE ADRENAL CORTEX TO THE EXPERIMENTAL PRODUCTION OF HYPOFERREMIA IN RATS. L. D. HAMILTON, C. J. GUBLER, HELEN ASHENBUCKER, G. E. CARTWRIGHT and M. M. WINTROBE, Endocrinology **48**:44 (Jan.) 1951.

Adrenalectomy resulted in a significant decrease in the level of the plasma iron of rats. This decrease was prevented by the daily administration of small doses of adrenocortical extract or cortisone but not desoxycorticosterone acetate. Further experiments with these rats indicated that there is a relation between the adrenal cortex and the development of hypoferremia following stress and that the adrenal cortex plays an essential role in the maintenance of the normal homeostasis of the plasma iron level.

JACOBSEN, Buffalo.

THE ROLE OF HORMONES IN ADIPOSE TISSUE GLYCOGEN SYNTHESIS IN THE RAT: THE ADRENAL CORTEX. FRANK L. ENGEL and JAMES L. SCOTT JR., Endocrinology **48**:56 (Jan.) 1951.

The authors state that knowledge concerning the role of the adrenal cortex in fat metabolism is fragmentary and, in many cases, contradictory. They summarize the present status of the problem. They then report a series of experiments designed to throw light on the role of the adrenal cortex in fat glycogen synthesis. These show that neither adrenocorticotropic hormone (ACTH) nor potent adrenal extracts or steroids have any consistent effect on adipose tissue glycogen concentration, but when these are given in conjunction with insulin, significant increases in fat glycogen occur. The adipose tissue glycogen content of the fasted adrenalectomized rat is normal, but it is lower than normal in fed adrenalectomized rats with or without insulin treatment.

JACOBSEN, Buffalo.

FAILURE OF GROWTH HORMONE TO PRODUCE A WEIGHT INCREMENT IN IMMATURE RATS UNDER CONDITIONS OF LOW ENVIRONMENTAL TEMPERATURE. BENJAMIN H. ERSHOFF, Endrocrinology **48**:111 (Jan.) 1951.

Administration of massive doses of a growth-promoting fraction of anterior pituitary failed to counteract the growth retardation of immature rats under conditions of low environmental temperature.

JACOBSEN, Buffalo.

DIAGNOSIS AND TREATMENT OF DISEASES OF THE PARATHYROID GLANDS. ROBERT M. HAYNE, Illinois M. J. **97**:319 (June) 1950.

The parathyroid glands are endocrine bodies, important in the regulation of the calcium-phosphorus balance. The only significant parathyroid disturbances result from an excessive or deficient production of parathyroid hormone. Criteria for recognition and treatment of these conditions are discussed.

FROM THE AUTHOR'S SUMMARY.

ROLE OF THE ADRENAL CORTEX IN IMMUNITY. ABRAHAM WHITE, J. Allergy **21**:273 (July) 1950.

White gives a concise report reviewing what is known of the effects of the hormones produced by the adrenal cortex and the part they play in immunity. The adrenal cortex plays the following

roles in influencing immune mechanisms: 1. The level of secretory activity of the adrenal cortex is influenced by the administration of an antigen, since antigens may augment, in a nonspecific manner, pituitary-adrenal cortical secretion. 2. An increased level of circulating adrenal cortical steroids has a profound effect on cells of the reticuloendothelial system, namely, macrophages and lymphocytes, which are possibly concerned with the processes of antibody formation and release. 3. The rate of formation of antibodies by specific tissues is markedly influenced by adrenal cortical secretion.

The author points out that from the known physiological effects of the hormones it is theoretically possible to produce the following undesirable effects: (1) pancreatic diabetes, (2) osteoporosis, (3) hypertension, (4) Cushing's-syndrome-like symptoms and (5) marked accentuation of physiological effects characteristic of male hormone production, such as masculinization in the female.

HOYER, Cincinnati.

PRECOCIOUS PUBERTY. CHARLES W. LLOYD, JULIA LOBOTSKY, and MURIEL MORLEY, Pediatrics **6**:343 (Sept.) 1950.

Five girls and one boy with pituitary precocious puberty are described. One of the girls had a lesion in the region of the hypothalamus; the other five patients were considered to have constitutional precocity. These patients excreted amounts of sex steroids commensurate with their sexual development. The gonadotropin excretion, as measured by the ability of urinary extracts to increase mouse uterine weight and to produce ovarian hyperemia, was increased to values found in normal adults. The findings in these patients are contrasted with those in adrenogenitalism or "gonadal precocity," in which the sex steroid excretion is markedly increased and gonadotropin excretion is not increased.

FROM THE AUTHORS' SUMMARY.

ADRENAL CORTEX AND LIPID METABOLISM: EFFECTS OF CORTISONE AND ADRENOCORTICOTROPIN (ACTH) ON SERUM LIPIDS IN MAN. DAVID ADLERSBERG, LOUIS E. SCHAEFER and RHODA DRITCH, Proc. Soc. Exper. Biol. & Med. **74**:877 (Aug.) 1950.

The total and esterified cholesterol, lipid phosphorus, total lipids and the calculated neutral fat values were determined on 15 persons with various diseases who were given cortisone in doses varying from 25 to 200 mg. a day. There was a slight increase (15%) in the total serum cholesterol of the 15 patients who received cortisone. The phospholipids increased 26%, while the average calculated value for neutral fat decreased 51%. ACTH produced only a slight increase in the cholesterol (4%) and phospholipids (9%), with a slight decrease in the neutral fat (16%).

HANSEN, Galveston, Texas.

PRECOCIOUS PUBERTY OF INTRACRANIAL ORIGIN. CHARLES E. TROLAND and CARROLL A. BROWN, J. Neurosurg. **5**:541 (Nov.) 1948.

Troland and Brown review 12 cases of ectopic pineal tumors from the literature and add a case of their own. This case differed from the reported cases in that precocious puberty was a symptom.

Their patient, a boy aged 14 yr. was admitted to the neurosurgical service complaining of loss of vision, headaches, nausea, and vomiting. When he was 9 yr. old the mother noted that he seemed stronger than his older brothers. At the age of 10 yr. excessive pubic hair and enlargement of the external genitalia were evident. For eight months prior to admission he had complained of progressive loss of vision in both eyes.

The neurologic status was normal except for bilateral pallor of the optic disks, more pronounced on the left, decreased visual acuity and bitemporal hemianopsia with some constriction of the nasal field of the right eye and considerable constriction of the left. A divergent strabismus of 20 degrees was present in the right eye in all meridians. Roentgenograms of the skull showed a marked thinning of the floor of the sella turcica, with erosion of the posterior clinoid processes. The bone age of the long bones corresponded to that of person of at least 18 yr. A ventriculogram showed a defect in the anterior floor of the third ventricle. A cranio-

tomy done in the right frontal area revealed a tumor obliterating most of the structures surrounding the chiasmal region. The histologic diagnosis was pinealoma. Roentgen therapy was given postoperatively.

It is the authors' opinion that, for the present, precocious puberty should be regarded as a multiglandular dysfunction, involving the hypothalamus, tuber cinereum, and hypophysis, all of these structures having been held responsible for genital dysplasia by different authors. In the opinion of the authors, involvement of the pineal region was not responsible for the precocious puberty of their patient.

TOZER, Philadelphia [ARCH. NEUROL. & PSYCHIAT.].

EXAMINATION OF THE THYROID GLAND IN 1,000 SCHOOL CHILDREN. GALINA SOLOVEY DE MILECHNIN, Arch. pediat. Uruguay **21**:718 (Sept.) 1950.

The thyroid gland was examined in 1,078 children in schools in Montevideo. A normal gland was found in 847; a gland of easy palpation, in 221 (20.5%; 23.47% in girls, and 13.5% in boys), and goiter, in 10 (0.92%), all girls.

FROM THE AUTHOR'S SUMMARY.

Diseases of Muscles, Bones, Joints and Lymph Nodes

EVALUATION OF OSSIFICATION DISTURBANCES. L. BARTA, Ann. pædiat. **172**:165 (March) 1949.

On the basis of investigations carried out in two cases, Barta shows that the thyroid gland, commensurate with the individual sensitiveness, produces different effects with regard to the ossification. In the author's second case the third ventricle was enormously dilated. In this child the difference between his actual age and the age one would have expected from the number of ossification points present was about seven years. The author envisages the possibility that in the case of damage to the diencephalon the thyroid gland may produce an extreme degree of ossification. He supposes that the state of the diencephalon influences the action of the thyroid on the ossification to a large extent.

FROM THE AUTHOR'S SUMMARY.

PATHOLOGICAL ANATOMY OF EARLY INFANTILE MALIGNANCY IN THE FORM OF MARBLE BONES WITH A SIMPLE RECESSIVE FACTOR. E. UEHLINGER, Helvet. paediat. acta **4**:60 (Feb.) 1949.

The postmortem examination in two cases of malignant osteopoikilosis in early infancy in a brother and sister reveals principally the inhibition of the maturation of both skeleton and bone marrow. The endochondral development of the skeleton has remained stationary at the stage of primary spongy tissue. The development of the periosteal fibrous bones and of the skull cap bones, preformed of connective tissue, into lamellar bone is greatly delayed. The persistence of the primary spongy tissue leads, firstly, to a lack of medullary cavity and, secondly, to a peculiar deformity of the bone shape, characteristic of osteopoikilosis. The club shape of the long and short long bones is due to the absence of the "modulation variation" (Hunter). The intramedullary blood formation is quantitatively small and only to be found in those medullary cavities which are surrounded by lamellar bones. The maturation of the tela ossea and of the bone marrow is closely synchronized. The extramedullary blood formation, together with a marked shift to the left of the erythropoiesis and leukopoiesis, is combined with the inhibition of the skeletal development, so that the fetal extramedullary blood formation persists.

The osteophytosis of the skull cap, with the typical spiculated appearance on roentgenograms, occurs in reaction to the pressure of the bone marrow on the periosteum and is thus independent of the other ossific disturbances and is not characteristic of osteopoikilosis.

FROM THE AUTHOR'S SUMMARY.

NONINFLAMMATORY VARIATIONS IN SKELETAL OSSIFICATION IN CHILDREN. S. SANTYAN Y VELASCO, Pediat. med. prat. **23**:131 (July) 1948.

A review of 11 pages classifies the various alterations of a noninfectious nature in bony development. The alterations may have their origin from one of six fundamental causes: (1) primary origin, (2) mechanical factors, (3) endocrine dysfunction, (4) vitamin deficiency, (5) circulatory disturbance and (6) various diseases.

HIGGINS, Boston.

MYASTHENIA GRAVIS. MARIO LATORRE B., Rev. chilena pediat. **20**:164 (April) 1949.

A case of myasthenia gravis in a 7 year old boy is reported. The diagnostic tests all gave positive reactions. He was discharged from the Luis Calvo Machenna Hospital 10 days after admission on a daily oral dose of ¼ of a 15 mg. tablet of neostigmine (prostigmin®) and since then has led a normal life. The secondary effects of neostigmine were easily controlled by giving 20 drops of belladonna tincture three times a day.

FROM THE AUTHOR'S SUMMARY.

CASE OF FETAL CHONDRODYSTROPHIA. MANUEL FRIDMAN and MIGUEL ANGEL MORRA, Arch. pediat. Uruguay **19**:399 (July) 1948.

The authors present a case of congenital chondrodystrophia, reviewing the pictures of the known chondrodystrophies and making their differential diagnoses with the clinical picture in the case observed by them. They conclude that it is an atypical dystrophy which does not fit completely the known description.

FROM THE AUTHORS' SUMMARY.

MYASTHENIA GRAVIS IN CHILDHOOD. VICTOR SCOLPINI, JUAN C. ANGELILLO, and ARMANDO TARAGANO, Arch. pediat. Uruguay **20**:159 (March) 1949.

A case is reported of a 14 year old boy who entered the hospital with ptosis of both upper eyelids, diplopia and falling because of loss of strength in the lower limbs and feeling of easy fatigue. He had no meningeal symptoms or changes in walking, in standing, in the reflexes, in sensitivity or in motility. There was ptosis of both lids, with limited movement of the eyes upward and sideways, diplopia appearing when these movements were carried out. There were no changes in swallowing or in the voice. The diagnosis of myasthenia gravis was proved by the tests of provoked muscular fatigue, which improved with administration of neostigmine (prostigmin®). The electrical study was made before and after the injection of this drug, revealing the electric characteristics of the myasthenic reaction of Jolly and its favorable change with use of the drug. The study of the chronaxia showed values slightly lower than normal. The test with the ergograph revealed that after the administration of neostigmine there was a slight increase in the amplitude of the contractions, but the most notable fact was that the patient could continue exercise for longer times without signs of fatigue. The treatment with neostigmine (three doses of 15 mg. each day) was efficient but of a transitory effect, which made it necessary to continue the treatment, although it was reduced to two doses daily. Bed rest and use of vitamins were indicated. The patient has been under observation for two months.

FROM THE AUTHORS' SUMMARY.

CORTICAL AND EPIPHYSIOGENIC HYPEROSTOSIS IN AN INFANT. KURT ERDMANN, Arch. Kinderh. **140**:56, 1950.

Erdmann give a description of a case of cortical and epiphysiogenic hyperostosis in a 3 months old girl. He gives a discussion of the literature since the first description, by Caffey, and the differential diagnosis with rickets, syphilis and osteomyelitis. He states that symptomatic relief is given by penicillin.

GOTTSTEIN, Chicago.

WHAT SHOULD THE PEDIATRICIAN AND PRACTICING PHYSICIAN KNOW ABOUT CONGENITAL DISLOCATION OF THE HIP? H. HILGENREINER, Wien. klin. Wchnschr. **60**:666 (Oct. 15) 1948.

It is recommended that the possible abduction of the legs be tested in all infants and young children. A completely uninhibited abduction excludes a dislocation in about 95 per cent of cases. If abduction is not uninhibited, a roentgen examination should be made and interpreted with the aid of the author's lines. The plaster of paris cast is to be replaced by splints.

AMBERG, Rochester, Minn.

CONTRIBUTION TO THE STUDY OF THE CHAUFFARD-STILL SYNDROME (STILL'S DISEASE). S. P. CHAROCOPOS, J. MARGARITIS and M. TZERBIS, Acta Soc. pediat. hellen. **2**:160 (July-Aug.) 1948.

The authors have studied three cases of multiple rheumatoid arthritis (Still's disease) over long periods. In all three the onset followed an infection. Of the numerous laboratory investigations, the most interesting are the positive results of the Takata-Ara and the cephalin flocculation tests (in all three cases, 3+), indicating impairment of the liver function.

Sulfonamides, penicillin and salicylates had no effect, while preparations of gold caused an improvement in the general condition. Injections of neostigmine (prostigmin®) and atropine had a favorable effect on the symptoms and signs from the joints.

DOXIADIS, Sheffield, England.

ARTHROGRYPOSIS MULTIPLEX CONGENITA. C. PETRIDES, Acta Soc. pediat. hellen. **2**:178 (Sept.-Oct.) 1948.

A case is reported of arthrogryposis multiplex congenita in a 6 day old girl. In addition to the typical features of the condition, fractures of both humeri and both femurs were present. The author concludes that intrauterine pressure may be responsible for the condition.

DOXIADIS, Sheffield, England.

Diseases of Eye

HEREDITARY MYOPIA IN IDENTICAL TWINS. R. A. BURNS, Brit. J. Ophth. **33**:491 (Aug.) 1949.

At the time of the examinations the sisters were 51. They began school at the age of 5 yr. and always had to sit close to the blackboard. They were found to be myopic at that time. The correction for Rose's eyes was -22.00 sph. $\bigcirc \times 1.50$ cyl., axis 95 for the right eye and -15.00 sph. $\bigcirc +2.00$ cyl., axis 80 for the left eye; that for May's eyes was -22.00 sph. $\bigcirc + 1.50$ cyl., axis 90 for the right eye and -24.00 sph. $\bigcirc + 6.00$ cyl., axis 100 for the left eye. The fundus picture was equally developed in all four eyes—high myopia at the posterior pole and moderate myopia at the periphery; large myopic crescents surrounding the disk but not involving the macula, which showed pigmentary mottling; evidence of arteriosclerosis, and extensive choroidal atrophy at the posterior pole. The pedigree showing direct transmission of the defect over three generations is evidence of its genetic origin.

W. ZENTMAYER [ARCH. OPHTH.].

FOSTER-KENNEDY SYNDROME, WITH UNILATERAL EXOPHTHALMOS IN A GIRL 3 YEARS OLD. M. MARIN AMAT and M. MARIN ENCISO, Arch. Soc. oftal. hispano-am. **7**:1190 (Dec.) 1947.

The authors report their observation on a case of the Foster-Kennedy syndrome with exophthalmos of the left eye in a girl 3 yr. old. The only pertinent fact in the history was trauma of the forehead two months before. The ocular findings were as follows: exophthalmos, of 6 mm., of the left eye; hypermetropia of 11 D. in the left eye and 2 D. in the right eye; considerable swelling of the optic disk in the left eye, and atrophy of the right optic nerve. Roentgenologic examination of the right orbit and optic foramen showed a normal foramen, but the orbital roof in its posterior portion, corresponding with the minor wing of the sphenoid bone, was hazy, denoting an osseous lesion. The authors give as a probable cause of the syndrome in this case, a fracture of the lesser wing of the sphenoid bone, a congenital lesion of neoplastic nature, or a congenital vascular anomaly.

H. F. CARRASQUILLO [ARCH. OPHTH.].

CONGENITAL BILATERAL PARALYSIS OF THE INFERIOR OBLIQUE MUSCLE. ALBERTO URRETS ZAVALIA (HIJO), Arch. oftal. Buenos Aires **23**:172 (July-Aug.) 1948.

The author states that paralyses of the inferior oblique, as well as those of the other vertically acting extraocular muscles, appear more frequently in recent statistics than in the past. He believes that this is due to the more frequent recognition of congenital muscular insufficiencies due to defects in development which appear not as vertical deviations, as might be expected, but as later deviations, which are often concomitant in that the movements follow a horizontal plane,

but not concomitant with regard to the movements of elevation and depression. These congenital insufficiencies of the inferior oblique muscle are difficult to diagnose, and the presence of a phenomenon such as adduction in elevation, sometimes associated with adduction in depression, aids in the diagnosis. Detailed case histories are presented.

M. E. Alvaro [Arch. Ophth.].

Latent Nystagmus in Congenital Unilateral Blindness. J. Ohm, Arch. f. Ophth. **148**: 318 (March) 1948.

Thorough graphic analysis of the nystagmus was made in a case of the type indicated in the title. Interpretation of some of the findings in the light of the well-established principles of "nystagmology" is difficult.

P. C. Kronfeld [Arch. Ophth.].

Congenital Megalocornea. R. Friede, Arch. f. Ophth. **148**:761 (Dec.) 1948.

A family with four cases of megalocornea is reported. In two of the cases the author performed cataract extractions. After weighing carefully the various existing theories of the origin of megalocornea, he restates his own view (reported before) that megalocornea is a phylogenetic developmental anomaly.

P. C. Kronfeld [Arch. Ophth.].

Embryotoxon Corneae Posterior Axenfeld. H. Hugger, Arch. f. Ophth. **148**:780 (Dec.) 1948.

The author describes two cases of a distinct white line, parallel with the limbus, in the deepest and very peripheral portions of the corneas. One eye showed other anomalies and an increased ocular tension. From the appearance of the eyes in his cases and the study of the literature, the author interprets the disturbance as due to displaced canal of Schlemm. He apparently did not examine his patients gonioscopically, nor does he seem aware of the gonioscopic study of this condition by Busacca and Pinticart (*Ophthalmologica* **115**:283 [May] 1948).

P. C. Kronfeld [Arch. Ophth.].

Actions of Vitamin D_2 [Calciferol] in Diseases of the Eye of Tuberculous Origin. A. Dobrosmyslov, Vestnik. oftal. **28**:24, 1949.

Observations were made on the action of vitamin D_2 (calciferol, or irradiated ergosterol) on tuberculous diseases of the eye in two series of patients. One series consisted of 10 patients, six of whom had uveitis and keratoscleritis and four phlyctenular keratoconjunctivitis. All received 200,000 units of calciferol a day for a period of 12 days to two months. Simultaneously, desensitizing treatment with calcium administered by intravenous injection and iontophoresis and proper diet was applied. In six patients exacerbation of the disease was produced, evidenced by increase in the ciliary injection, photophobia, and keratic precipitates, as well as by nausea, diarrhea, and subfebrile increase in temperature. The intensity of the Mantoux reaction was also increased during the treatment with calciferol. Thus high doses of the vitamin in this group produced sensitization in the form of activation of the ocular process and increase in the intensity of the Mantoux reaction.

In the second series, of seven patients, the dose of calciferol was decreased to 20,000 units a day for a few weeks. No change in the course of the ocular disease was observed, but the intensity of the Mantoux reaction was decreased considerably.

In three patients with allergic scrofulous disease of the eye there was considerable clinical improvement in the eye under the vitamin therapy.

Laboratory data indicate that the calcium content of the urine is increased during treatment with the vitamin. Most likely the change in the sensitization depends not on the calcium content of the blood but on the change in the calcium metabolism; i. e., with large doses of the vitamin a decrease of calcium salts occurs, but with smaller doses there is an accumulation of calcium salts in the organism.

The lowering of specific sensitivity of the organism with smaller doses of the vitamin permits the application of tuberculin therapy to tuberculous diseases of the eye.

O. Sitchevska [Arch. Ophth.].

Treatment of Scrofulous Keratitis with Tuberculin and Calcium Chloride. Z. Shuiskaya, Vestnik. oftal. **28**:34, 1949.

A comparative evaluation of the desensitization with tuberculin and with intramuscular injections of calcium chloride was made on 50 patients with various forms of scrofulous keratitis—phlyctenular keratitis, infiltration of the cornea, with mild vascularization, and scrofulous pannus. The patients were predominantly young (from 10 to 30 yr.). In 24 patients no changes were found in the lungs; in 18 patients bronchoadenitis was present in the stage of induration, and in eight patients changes in the lungs were seen on roentgenoscopic examination. The reaction to the Mantoux test was positive in all patients.

The tuberculin therapy was applied to one-half the patients after the Pandorf method (several scratchings of the skin of the forearm with rubbing in of old tuberculin), with an interval of six to eight days. Improvement in the subjective and objective symptoms was marked after one or two treatments. Blepharospasm and photophobia disappeared; infiltrates absorbed, and vessels of the cornea were obliterated after a few treatments. In three eyes there was a focal reaction in the form of new infiltrates. The general condition also improved under the tuberculin desensitization therapy.

Intramuscular injections of calcium chloride (0.25% solution, 10 cc. daily for 10 to 12 injections) were given to the other 25 patients. There was no general reaction, but the desensitizing action was noted only after several injections, as the irritability of the eyes diminished rapidly, the patients gained in weight, and they remained in the hospital a much shorter period than those treated with tuberculin. The Mantoux reaction remained positive for all patients receiving either method of treatment.

Shuiskaya gives preference to calcium chloride therapy, as the dosage is easier to maintain than in the tuberculin therapy and there are no contraindications to it, as there are to tuberculin therapy.

O. Sitchevska [Arch. Ophth.].

Cutaneous Diseases; Allergy

The Effect of Cortisone on Bronchial Asthma. Theron G. Randolph and John P. Rollins, J. Allergy **21**:288 (July) 1950.

Five patients with severe bronchial asthma were given 300 mg. of cortisone intramuscularly over a period of 48 hours. This gave relief from symptoms, but the degree of relief was not as great as that received from 225 mg. of adrenocorticotropic hormone (ACTH) given to four of the five patients.

In another patient with bronchial asthma given vitamin C for a week prior to the administration of cortisone, the relief was more complete and sustained.

Hoyer, Cincinnati.

The Incidence of Abnormal Electroencephalographic Patterns in Allergic Children. Robert Chobot, Harold D. Dundy and B. L. Pacella, J. Allergy **21**:334 (July) 1950.

The study was conducted on 80 allergic children ranging in age from 2 to 4 years. There was no history of convulsions or syncope for any of the children or their parents or families.

The encephalograms of 26 (33%) of the children were considered abnormal. The abnormal activity consisted chiefly in the appearance of slow potentials, in greater incidence than is usually encountered for normal children.

A similar high incidence of abnormal patterns was found in the families of the allergic children. Prophenpyridamine (trimeton®) failed to alter the encephalographic pattern in the children.

Hoyer, Cincinnati.

NEVOXANTHO-ENDOTHELIOMA. CARL W. LAYMON and EUGENE P. SCHOCH, Minnesota Med. **32**:596 (June) 1949.

The authors review the literature and discuss four cases of nevoxanthoendothelioma. The disease is an unusual type of juvenile xanthoma, characterized by yellow or reddish nodules present at birth or developing shortly thereafter. The general health is not affected, and there is a tendency toward spontaneous involution, although the lesions may persist for several years. The values for the blood lipids are normal. The histologic picture is distinctive and consists of a proliferation of the connective tissue and an infiltration of histiocytes and endothelial giant cells. Foam cells and Touton giant cells are also present. Appropriate stains show the presence of lipids in the infiltrated areas.

STOESSER, Minneapolis.

PREREQUISITES OF SUCCESSFUL HEPARINIZATION TO PREVENT GANGRENE AFTER FROSTBITE. KURT LANGE, LINN J. BOYD and DAVID WEINER, Proc. Soc. Exper. Biol. & Med. **74**:1 (May) 1950.

One hindleg of each of 83 rabbits was immersed in an alcohol-solid-carbon-dioxide bath at —12 C. to —30 C. for 30 to 45 minutes. Fifty-one of these animals were heparinized by injections into the ear vein, and 32 served as controls. Eleven of the animals died from severe hemorrhages before the fate of the exposed leg could be determined. The exposures were carried out under light thiopental sodium (pentothal sodium®) anesthesia. All the control animals showed gangrene to the upper border of the exposed area. Of the 51 heparinized animals, 34 had a coagulation time of 30 minutes or more. Seventeen showed at one or several occasions a coagulation time below 30 minutes. Of the 34 animals showing a satisfactory elevation of coagulation time for at least five days, in five (15%) complete or extensive partial gangrene developed. Of the 17 animals showing a coagulation time below 30 minutes at one or several occasions, in 13, or 76%, gangrene developed.

HANSEN, Galveston, Texas.

THE DERMAL LOSS OF IRON. WILLIAM S. ADAMS, ALAN LESLIE and MELVIN H. LEVIN, Proc. Soc. Exper. Biol. & Med. **74**:46 (May) 1950.

Mitchell and Hamilton (*J. Biol. Chem.* **178**:345, 1949) reported as much as 6.5 mg. of iron lost in sweat each day. The authors studied 118 samples of sweat from 25 normal subjects and found a negligible content of iron. On the other hand, when the sweat contained desquamated epithelial cells, the iron content was considerably increased. The authors conclude that the iron loss is not an essential function of the process of sweating but is associated primarily with desquamation.

HANSEN, Galveston, Texas.

ACHROMOTRICHIA DUE TO COPPER DEFICIENCY. JAMES M. HUNDLEY, Proc. Soc. Exper. Biol. & Med. **74**:531 (July) 1950.

A highly purified diet lacking in copper resulted in achromotrichia in black Evans male rats. The first sign of grayness was noted as early as 10 days and developed progressively, reaching maximum incidence usually about eight weeks after the start of the diet. A large number of substances were tested for their ability to prevent the abnormality. The achromotrichia could be cured by adding copper sulfate to the diet and could be prevented by diets containing approximately 20 micrograms of copper per gram. The activity of liver, yeast and alfalfa in preventing and curing the achromotrichia was due to their copper content.

HANSEN, Galveston, Texas.

ASPECTS OF PERENNIAL ALLERGIC RHINITIS AND ASTHMA IN CHILDHOOD. H. E. EDWARDS, Canad. M. A. J. **61**:36 (July) 1949.

One hundred and forty-three cases of respiratory allergy were studied. Practically all patients with asthma also had rhinitis, and only 31 patients had rhinitis alone. Onset was after the second year in all but 9 cases. Because it is demonstrated that children outgrow sensitivities and acquire others, it is felt that skin tests should be repeated every two years. Desensitization with use of mixed inhalant antigens is recommended.

MCGUIGAN, Evanston, Ill.

PINK DISEASE. GWYN GRIFFITH, Edinburgh M. J. **42**:162 (April) 1950.

Griffith has reviewed 27 cases of erythredema polyneuropathy (pink disease). Four of the patients died. He has also reviewed the literature on this disorder and, for the most part, his cases fit into the classic pattern. Several of his cases were localized in two small rural communities, a localization of cases being reported before by other observers. He is at a loss to explain the nature of the disease but suggests that it is a virus encephalomyelitis. Thirteen of his patients had received mercurial teething powders; some for only brief periods. He does not believe that he has enough evidence to incriminate mercury.

In four of his severely ill patients abnormally heavy growths of hair developed about the face and head and on the back, arms and legs. This is in contrast to the oft seen loss of hair in this disease.

MACDONALD, Pittsburgh.

REVIEW OF A SERIES OF CASES OF ANGIOMA TREATED BY X-RAYS. COLIN GURNER, Clin. Rep. Adelaide Child. Hosp. **1**:143 (Nov.) 1948.

Gurner presents a discussion of the use and application of x-ray therapy in cases of angioma. Early treatment is advised, and it is noted that repeated doses become less effective. High voltage treatment is not advised, since it may cause retardation of growth in the affected limb.

McGUIGAN, Evanston, Ill.

CONGENITAL ECTODERMAL DYSPLASIA OF THE ANHIDROTIC TYPE. H. G. RISCHBIETH, Clin. Rep. Adelaide Child. Hosp. **1**:259 (Nov.) 1949.

Two families whose members showed congenital ectodermal dysplasia were studied. In one family 10 of 70 members of five generations were affected. The second family showed less severe defects in four members of three generations. Males were more severely affected than females, but no abnormality of mentality was found. Abnormal dentition was a striking feature in all cases.

McGUIGAN, Evanston, Ill.

CALCIFEROL IN LUPUS VULGARIS OF CHILDREN. K. D. LABIRI, Indian J. Pediat. **16**:72 (April) 1949.

A case of lupus is presented. Treatment with 3,000 units daily of calciferol for 50 days resulted in complete cure.

McGUIGAN, Evanston, Ill.

XERODERMA PIGMENTOSA WITH SPECIAL REFERENCE TO THE DOPA REACTION. A. ERWIN SUNDARESON, J. Indian M. A. **17**:353 (Aug.) 1948.

A case of xeroderma pigmentosa is described, with detailed histological studies. The epidermal site of melanogenesis is pointed out, and the action of ultraviolet rays in producing the disease is discussed.

McGUIGAN, Evanston, Ill.

AN UNUSUAL PURPURIC SYNDROME. M. MOSES and JACK H. MEDALIE, South African M. J. **24**:829 (Sept. 30) 1950.

An unusual case of purpura is described which combined the manifestations of nonthrombopenic purpura (Schönlein's or Henoch's disease) and anaphylactoid purpura. It is Osler's contention that purpura is a single disease of protean manifestations and not a group of distinct entities.

McGUIGAN, Evanston, Ill.

ALLERGY IN CHILDREN WITH REPORT OF A SYNDROME OF GASTRO-INTESTINAL ALLERGY. A. S. ABBASY, J. Roy. Egyptian M. A. **33**:585, 1950.

The many manifestations of allergy are described, with special reference to gastrointestinal symptoms. A syndrome is reported found in seven patients, all of whom had similar symptoms of severe intestinal colic, sudden in onset, with no other outstanding gastrointestinal symptoms. Physical signs were scarce. Attacks lasted one to three days and ended suddenly, with urticarial lesions appearing in six of the seven cases toward the end of the clinical upset.

The author notes that urticaria was widespread at the time these cases occurred and suggests the possibility of urticarial lesions of the mucous membrane of the intestine with resultant spasm.

McGUIGAN, Evanston, Ill.

PENICILLIN AND ALLERGY. L. MICHAUD and P. H. CRAUSAZ, Schweiz. med. Wchnschr. **78**: 1242 (Dec. 24) 1948.

A patient with purulent bronchiectasis received penicillin intramuscularly and as an aerosol. Besides other manifestations of allergy, intrabronchial instillations of penicillin provoked an exudation in the corresponding lobe of the lung.

AMBERG, Rochester, Minn.

ALLERGIC PHENOMENA IN THE COURSE OF PROLONGED TREATMENT WITH ANTIBIOTICS. L. MOSONYI and E. OBLATT, Schweiz. med. Wchnschr. **79**:104 (Feb. 5) 1949.

It would appear that any penicillin treatment causes a sensitization of the organism, manifesting itself in an increase of the eosinophils in the blood. This, independent of clinical symptoms, is regarded as sufficient proof of sensitization. In 13 cases in which no eosinophils were found before the treatment they appeared with one exception. More than 6 per cent eosinophils was found in eight cases, and in one case as much as 22 per cent was found. On continuation of the treatment, the number of eosinophils dropped to 3 to 4 per cent.

AMBERG, Rochester, Minn.

CONGENITAL ECTODERMAL DYSPLASIA. G. PRETO, Clin. pediat. **30**:436 (July) 1948.

Seven cases of congenital ectodermal dysplasia are reported from one family. All patients were males, one in the first, one in the third and five in the fourth generation. Transmission was through the female. Each patient showed the typical findings of the disease—hypotrichosis, absence of teeth, absence of sweat and sebaceous glands, myopia, scanty lacrimation, crusty atrophic rhinitis, plantar and palmar keratosis, a peculiar-shaped face with deep set eyes, swollen lips, large chin, prominent ears and a mild mental retardation.

HIGGINS, Boston.

AN EPIDEMIC OF ACUTE MENINGITIS WITH HERPES ZOSTER IN PATIENTS WITH TUBERCULOUS MENINGITIS UNDER TREATMENT WITH STREPTOMYCIN INTRASPINALLY. L. MARTONI, Clin. pediat. **31**:65 (Feb.) 1949.

Four patients with tuberculous meningitis had been reacting very favorably to intraspinal streptomycin treatment. Almost simultaneously, shortly after an intraspinal treatment, each of the four became acutely ill with high fever and headache; lumbar puncture revealed cloudy fluid under considerable pressure. Three days later typical eruptions of herpes zoster appeared. Ten days to two weeks later it was possible to resume the streptomycin treatments. The source of the epidemic may have been from a ward physician who was recovering from an attack of herpes zoster.

HIGGINS, Boston.

TREATMENT OF THE SKIN BY X-RAY IN CASES OF INFANTILE ECZEMA. G. MAINI and I. ORLANDINI, Lattante **19**:392 (July) 1948.

Fourteen infants with typical eczema of the face responded to x-ray therapy by a rapid and progressive clearing of the lesion in from seven to 10 days after treatments were finished. The dose given was five treatments on alternate days. Only two of the infants had a recurrence and required another course of treatments. No local or generalized disturbances were observed from these treatments.

HIGGINS, Boston.

PATIENT WITH SCLERODERMA TREATED AND CURED WITH VITAMIN B_6. A. VECE, Pediatria **56**:523 (July) 1948.

In the patient, a boy of 5 years, generalized scleroderma had developed about one month before treatment with daily doses of 30 mg. of vitamin B_6 was started. Twenty days later the skin lesions had cleared up and did not return.

HIGGINS, Boston.

FREQUENT ERRORS IN DIAGNOSIS IN CHILDREN'S DERMATOLOGY. DARIO SEPULVEDA R., Rev. chilena pediat. **21**:346 (Aug.) 1950.

The author briefly reviews some dermatological syndromes in children and the common errors that he has witnessed in 20 years of practice dedicated to pediatric dermatology. He emphasizes scabies in infancy, which he believes to be more frequent than generally diagnosed; he mentions the wrong diagnoses made (eczema, prurigo, impetigo, folliculitis, furunculosis and others) and mentions the condition by him named "eczema due to acaric sensitization."

He then refers to the diagnostic errors made in connection with strophulus, eruptions due to Cimex lectularius bites, eczema, desquamative erythroderma (Leiner's disease), dermatitis exfoliativa (Ritter's disease), papuloerosive gluteal dermatitis, syphilis, tuberculous skin manifestations, some infectious diseases of infancy, erythema polymorphum, drug reactions and congenital dermatosis, based specially on his own experience. The recent poliomyelitis and smallpox epidemics, as well as the massive vaccination campaign, have given the author an opportunity to analyze the hyperkeratotic zones seen in acute poliomyelitis, as well as a great variety of vaccinal complications, which he differentiates from smallpox, chickenpox and other complications. He mentions some dermatological syndromes that accompany several diseases in infancy and that must be considered when making the diagnosis.

The author is the first one to point out the relation between certain cutaneous elements he describes and hypothyroid conditions, and also he claims to be the first one to use a skin scarification test with BCG in those cases in which there is suspicion of a tuberculous allergy in spite of a persistence of negative tuberculin reaction (cases of humoral allergy without a cutaneous tuberculin reaction).

FROM THE AUTHOR'S SUMMARY.

FEER'S DISEASE. HANS-RUDOLF WIEDEMANN, Med. Klin. **44**:1433 (Nov. 11) 1949.

Attention is directed to the role of mercury, arsenic and thallium in the production of acrodynia, or erythredema polyneuropathy (Feer's disease), as a neuroallergic reaction.

AMBERG, Rochester, Minn.

BACTERIOLOGIC EXAMINATIONS IN CASES OF DESQUAMATIVE ERYTHRODERMA IN INFANTS (LIENER'S DISEASE). J. BENEDEK, Orvosi hetil. **89**:168 (May 30) 1948.

According to the examinations of Benedek, on the skin of infants suffering from desquamative erythroderma (Liener's disease), Staphylococcus aureus and Staph. citreus, almost in pure culture, were found. These disappeared promptly after penicillin treatment. From this fact, Benedek draws the conclusion that desquamative erythroderma can be favorably influenced by penicillin treatment.

GÖRGÉNYI-GÖTTCHE, Budapest, Hungary.

CASE OF NEUROFIBROMATOSIS. A. AGNEESSENS, Maandschr. Kindergeneesk. **18**:347, 1950.

The author reports a case of neurofibromatosis (von Recklinghausen's disease). After a short review of the histologic appearances and the symptomatology of the affection, the case report is given. An infant 7 weeks old presented multiple subcutaneous and intramuscular tumors, chiefly situated in the lower limbs and the abdominal wall. The diagnosis was confirmed by biopsy. Roentgenography revealed extensive cystic bony changes in the region of the metaphyses of most of the long bones. The child was reexamined frequently. The condition fluctuated for some time and at 7 months took a definite turn for the better. Ten months later the patient appeared to be practically well, with the exception of a pea-sized nodule in the tongue. The other tumors had disappeared, and the bony structure was normal. The processes leading to the appearance and disappearance of the bony lesions are discussed.

FROM THE AUTHOR'S SUMMARY.

Surgery and Orthopedics

BURNS AND SCALDS. S. GHOSE. Indian J. Pediat. **17**:137 (July) 1950.

The subject of burns is reviewed briefly, with consideration of pathological, physiological, and etiological aspects. Treatment is not discussed.

McGUIGAN, Evanston, Ill.

TREATMENT OF BURNS. U. C. CHAKRAVARTTY, Indian J. Pediat. **17**:146 (July) 1950.

Treatment is organized under various headings: treatment of shock, prevention of sepsis, control of sepsis in infected burns, control of local edema and fluid loss from the burned surface, physiological rest, maintenance of fluid balance and nutrition, prevention of deformity, and later surgical rehabilitation. The discussion follows the modern physiological concept of burn therapy.

McGUIGAN, Evanston, Ill.

Teeth and Dentistry

PROTRUDING EARS, CORRECTION BY PLASTIC SURGERY. OSCAR J. BECKER, Illinois M. J. **98**:196 (Sept.) 1950.

An original method of reconstructing protruding ears, which has yielded highly satisfactory results in the simulation of normal ears, is presented. By this procedure the ear is placed in its proper position to the head, does not obliterate the posterior auricular sulcus and leaves a smooth superior crus of the anthelix. The lower pole of the ear is corrected by the removal of the cauda helicis.

FROM THE AUTHOR'S SUMMARY.

ANESTHETIC MANAGEMENT OF INFANTS AND CHILDREN DURING ENDOSCOPY. M. HELRICH, J. F. DALEY, and E. A. ROVENSTINE, Pediatrics **6**:625 (Oct.) 1950.

An effort has been made to find an anesthetic procedure for endoscopy in infants and children which would be satisfactory to the surgeon and provide an adequate margin of safety for patients. The various technics and agents in current use have been reviewed and discussed. A more recently available thiobarbiturate, sodium 5-allyl-5(1-methylbutyl)-2-thiobarbiturate (sodium surital®), that has shown promise as a useful intravenous anesthetic agent was given trial in 200 cases of endoscopy in children. The rectal route of administration of a 5% solution of the drug was found to be optimum. The doses used varied from 0.8 to 1.0 gm. per 50 pounds (28 kg.) body weight. Preanesthetic medication and the technic employed are described in detail. It was believed that the results achieved were more satisfactory than those experienced with previously used technics. The advantages and complications of this method are discussed.

FROM THE AUTHORS' SUMMARY.

Miscellaneous

INJURIES IN CHILDHOOD. CLEMENT R. HANLON, J. E. BUTCHART and PAUL KEMPF, J. Pediat. **34**:688 (June) 1949.

In a period of three summer months, 566 children under 18 years of age were treated for injuries at St. Luke's Hospital, Bethlehem, Pa. This is an average of about six children each day, and of these, over six children each week were admitted to the hospital for treatment or study.

An analysis of these cases reveals several interesting observations. Almost three fourths of these children were boys. The largest group included children between 2 and 3 years of age. Most accidents occurred in the home or on a city street and most occurred late in the day. The greatest number of injuries resulted from falls.

Although there were no deaths in this series, the authors point out that accidents are the leading cause of death and a major cause of permanent and disabling injuries among children over 1 year of age. Child safety is a family as well as a community problem.

MACDONALD, Pittsburgh.

THE EFFECT OF ETHANOL AND VARIOUS METABOLITES ON FLUOROACETATE POISONING. JOHN O. HUTCHENS, HAROLD WAGNER, BETTY PODOLSKY, and T. M. McMAHON, J. Pharmacol. & Exper. Therap. **95**:62 (Jan.-April) 1949.

Fluoroacetate has been used in control of rodents, and there have been accidental deaths of domestic animals from its use. This article does not state whether this acetate has been one

used by house owners or whether in such cases humans have been poisoned. Symptoms from adequate doses of the acetate to the animals (mice, guinea pigs, rabbits, dogs) were early prostration and, when the animals were disturbed, convulsions that usually ended in death a few hours after administration of the acetate. Ethanol (ethyl alcohol), when given as a 10% solution subcutaneously from 10 to 30 minutes after poisoning, lowered the death rate considerably. Several other drugs or chemicals did not lower the death rate.

PILCHER, Cleveland.

NICOTINE IN BLOOD IN RELATION TO SMOKING. WILLIAM A. WOLFF, MARINE A. HAWKINS, and W. E. GILES, J. Pharmacol. & Exper. Therap. **95**:145 (Jan.-April) 1949.

The authors noted that there are data recorded on the quantity of nicotine (*a*) absorbed from cigarette smoke in the respiratory tract; (*b*) excreted in the urine of smokers, and (*c*) in milk of lactating women cigarette smokers. The present study was on healthy adults between the ages of 20 and 30 years who, except for the slight inhalor group, habitually smoked 20 or more cigarettes daily. The subject was allowed to smoke freely until the late evening of the day preceding the test. On the morning of the test the initial blood sample was drawn by venipuncture before smoking began. During the next seven hours the subject smoked 20 standard brand cigarettes, about two-thirds of each cigarette being smoked during a 10 minute period.

The quantity of nicotine in the blood was determined chemically. The concentration of nicotine in the blood at the end of the smoking period averaged 0.14 mg. per liter of blood; the deep inhalors had both a higher initial level and a higher level after the test period than did the mild inhalors. All the data presented suggest a rather efficient mechanism for disposing of nicotine absorbed from tobacco smoke.

PILCHER, Cleveland.

THE ABSORPTION OF PHENYLMERCURIC ACETATE FROM THE VAGINAL TRACT OF THE RAT. EDWIN P. LAUG and FRIEDA M. KUNZE, J. Pharmacol. & Exper. Therap. **95**:460 (Jan.-April) 1949.

Other reports have shown that small amounts (3 to 4%) of phenylmercuric acetate instilled into the human vagina were recovered from the following 24 hour urine specimen. This paper shows that about 25 per cent of a dose of phenylmercuric acetate when instilled into the vagina of the rat can be absorbed and stored by the liver and kidney and that of such stored mercury, 60 to 80% may be found in the kidneys one week after a single exposure. The authors point out the dangers of the repeated use of this agent as a contraceptive, although the amount of mercury injected is small.

PILCHER, Cleveland.

EFFECT OF CONVULSANT AND ANTICONVULSANT AGENTS ON THE ACTIVITY OF OXALACETIC AND PYRUVIC CARBOXYLASE. CLARA TORDA and HAROLD G. WOLFF, J. Pharm. & Exper. Therap. **98**:358 (April) 1950.

The work of other investigators suggests that idiopathic convulsions are induced by an accumulation of bicarbonates in the brain. The present paper deals with the results of studies to learn whether or not chemical agents may induce convulsions through an accumulation of bicarbonates in the brain. Experiments were made on pigeons, using 10 convulsants, such as caffeine, cocaine and strychnine; the technical features need not be presented.

The conclusions from the study are that the convulsant agents investigated inhibit carbonic anhydrase and oxalacetic and pyruvic carboxylases, suggesting that they may produce a slowing of the normal rate of removal of bicarbonates from the brain. In the brain, an organ continuously active, the resulting accumulation of bicarbonates may be sufficiently great to induce convulsions. Therefore, the results of these studies support the view that an accumulation of bicarbonates is relevant to the induction of idiopathic and chemically induced seizures. The authors state that more definite inferences cannot be drawn in the absence of evidence that the accumulation of bicarbonates is significant in amount and that such accumulation actually precedes the changes in cerebral electrical activity characteristic of seizures.

PILCHER, Cleveland.

DEHYDROACETIC ACID (DHA). H. C. SPENCER, V. K. ROWE and D. D. MCCOLLISTER, J. Pharm. & Exper. Therap. **99**:57 (May) 1950.

The chemical dehydroacetic acid has a wide spectrum of antimicrobial activity against bacteria, fungi and yeasts, including many of the organisms that are commonly encountered in food and beverage processing, as well as in pharmaceutical and cosmetic preparations. This and other studies have been made so that the health problems associated with the use of this material could be properly evaluated.

Extensive studies were made on animals of the effects of application of the chemical to the skin, and 200 human subjects were studied by oral administration and skin tests. The chemical was without irritation to humans or animals. Animals were kept as long as two years on diets containing much more of the agent than would be effective as a food preservative, and no harmful effects were found. Even monkeys maintained for one year at their maximum tolerance level (three or four doses each week of 0.20 gm. per kilogram) showed no pathological lesions. Toxic effects observed in monkeys at higher dosage levels included loss of appetite, loss of body weight, retching, vomiting, ataxia and convulsions.

PILCHER, Cleveland.

THE PHYSIOLOGICAL DISPOSITION OF DICUMAROL IN MAN. MURRAY WEINER, SHEPARD SHAPIRO, JULIUS AXELROD, JACK R. COOPER and BERNARD B. BRODIE, J. Pharm. & Exper. Therap. **99**:409 (Aug.) 1950.

This interesting study of the physiological disposition of bishydroxycoumarin (dicumarol®) in man was made because of the variation in the results obtained in clinical use of the drug. Its effects are delayed, erratic and of variable duration in different persons. Its use poses the clinical problem of inadequate therapy on one hand and hemorrhage on the other. Although this drug is not commonly used in pediatric practice, the results of this study may be useful. The results may be summarized as follows.

1. Bishydroxycoumarin is slowly metabolized in man to unknown transformation products. The drug is extensively localized on the proteins of plasma and in other body tissues. The resulting low free plasma level explains, in part, its slow rate of transformation, as well as its negligible rate of elimination by the kidneys.

2. The drug is slowly and erratically absorbed from the gastrointestinal tract. There is considerable variation in the absorption rate in different subjects; furthermore, the small doses are absorbed more quickly than the large ones.

3. The rate of transformation of the drug is widely divergent for different subjects. The rate also depends on the dose, the smaller doses being metabolized at a faster rate.

4. For each subject there is a threshold plasma level of bishydroxycoumarin that must be reached before a detectable prothrombin response is elicited. This level varies from subject to subject, but it is generally between 5 and 10 mg. per liter. There is a considerable lag between maximal plasma level and maximal prothrombin time response to the drug.

5. The duration of the prothrombin time response is a function of the persistence of bishydroxycoumarin in the plasma. However, for a given plasma level of the substance, the elevation in prothrombin time varies widely among subjects.

PILCHER, Cleveland.

REMODELING MEDICAL EDUCATION. JOHN MCK. MITCHELL, Pediatrics **6**:687 (Nov.) 1950.

This article stresses the importance of making certain changes in the structure of the medical curriculum and in the methods of teaching. It emphasizes the fact that students must participate actively in the teaching program in order to obtain the maximum benefit. Ways by which this may be accomplished in a number of different teaching methods and common faults in the conduct of these same methods are cited in some detail. Especial attention is paid to the proper conduct of the inpatient and outpatient clerkships.

The vexing question of whether attendance should be compulsory or voluntary is discussed. The author feels that it is best to avoid either extreme. The failure of medical education to keep before the student the patient as an individual and the efforts which are being made to correct this fault at the school of the writer are pointed out. The features which distinguish a "strong" school of medicine are discussed in one section.

The article closes by calling attention to the important role of medical society meetings in the interchange of scientific information and the relative lack of use of this method in the United States for consideration of the problems of medical education. It is suggested that the pediatricians before whom this paper was read should continue the series of regional conferences by heads of pediatric departments which were instituted during the survey of pediatric education which was carried out by the American Academy of Pediatrics in 1947.

FROM THE AUTHOR'S SUMMARY.

STIMULATORY EFFECT OF AUREOMYCIN ON THE GROWTH OF CHICKS. A. R. WHITEHILL, J. J. OLESON, and B. L. HUTCHINGS, Proc. Soc. Exper. Biol. & Med. **74**:11 (May) 1950.

Day old chicks were housed on raised screens in heated brooders and were fed experimental diets supplemented with vitamin B_{12}. A corn-soybean diet was used, as well as a synthetic diet supplemented with pteroylglutamic acid. Aureomycin fed at a level of 25 mg. per kilogram gave the same stimulatory effect on growth as was found when whole Streptomyces aureofaciens mash was fed. Penicillin gave a response similar to that produced by aureomycin. This growth-producing effect is presumed to be an indirect one, since other antibiotics manifest the same property. The relation between this phenomenon and the proposed new APF (animal protein factor) in certain natural materials is not known.

HANSEN, Galveston, Texas.

JOINT ACTION OF PENICILLIN WITH CHLORAMPHENICOL ON AN EXPERIMENTAL STREPTOCOCCAL INFECTION OF MICE. E. JAWETZ and R. S. SPECK, Proc. Soc. Exper. Biol. & Med. **74**:93 (May) 1950.

White Swiss mice weighing about 20 gm. were given injections containing beta hemolytic, group A, type 3, streptococcus, strain C 203. In all experiments 0.2 ml. of a 10^{-6} dilution of culture, about 100 $L.D._{50}$, was injected intraperitoneally. Crystalline penicillin G sodium was freshly dissolved in saline prior to each experiment and suitably diluted. Chloramphenicol (chloromycetin® lot no. 129416, Parke, Davis & Company) was also dissolved in saline, and injections were given separately in various dilutions. The animals were observed for 10 days. Heart blood cultured on blood agar plates in all instances disclosed beta hemolytic streptococci in pure culture. The 50% curative dose of penicillin alone was 2 to 5 micrograms (0.1 to 0.25 mg. per kilogram), and of chloramphenicol alone, 400 to 600 micrograms (20 to 60 mg. per kilogram). All untreated animals died within less than three days after infection. Penicillin, 30 micrograms, alone or chloramphenicol, 800 micrograms, alone protected all but about 20% of the animals, whereas the administration of the two drugs together resulted in a mortality of 60%. This type of experiment was repeated many times, always with the conclusion that the two drugs interfered with each other's actions.

HANSEN, Galveston, Texas.

LEAD POISONING. H. G. RISCHBIETH, Clin. Rep. Adelaide Child. Hosp. **1**:125 (Nov.) 1948.

A brief discussion of lead poisoning is presented, with four cases reported in detail.

McGUIGAN, Evanston, Ill.

CANCER IN CHILDHOOD. COLIN GURNER, Clin. Rep. Adelaide Child. Hosp. **1**:237 (Nov.) 1949.

The incidence of various forms of malignant disease in childhood for a period of 20 years is reviewed. Actinomycosis, purpura and leukemia are included.

McGUIGAN, Evanston, Ill.

BAL IN THE SUCCESSFUL TREATMENT OF MERCURY POISONING FROM GRAY POWDER. B. KANEE and I. STOFFMAN, Clin. Rep. Adelaide Child. Hosp. **1**:292 (Nov.) 1948.

Mercury poisoning developed in a 2 year old child following the use of gray powder for constipation. Treatment with dimercaprol (BAL) resulted in dramatic and sudden recovery.

McGUIGAN, Evanston, Ill.

News and Comment

GENERAL NEWS

Specialists certified by American Board of Pediatrics, Inc.—The following physicians were certified by the American Board of Pediatrics, Inc., after examinations in Atlantic City, N. J., on May 5, 6, and 7, 1951:

Milton R., Aisenson, Flushing, N. Y.; Daniel H. Barol, Philadelphia; John Telfer Barrett, Providence, R. I.; Charles William Beaven, Newport News, Va.; Irwin M. Bleiweiss, Bronx, N. Y.; George J. Cardany, Chevy Chase, Md.; Nicholas J. Chiara, Brooklyn; Perry David Cohn, Passaic, N. J.; Marie Leonore Cote, Newburgh, N. Y.; Jess Diamond, New York; Leonardo Vicente dos Remedios, New York; George Conrad Eckhardt, Cheyenne, Wyo.; George Y. Elson, Philadelphia; Carl William Filsinger, Merchantville, N. J.; Sidney Friedman, Philadelphia; Daniel E. Gelfand, Denver; Robert Grayson, Miami Beach, Fla.; Caryl Biren Heimer, Brooklyn; James Franklin Johnson, New York; Douglas Edward Johnstone, Baltimore; Robert Kaye, Philadelphia; Werner Kornfeld, East Orange, N. J.; Edward Cary Lambert, Snyder, N. Y.; Thomas Francis Xavier Lenihan, Fairlawn, N. J.; Edward Levitzky, Rahway, N. J.; Harold Raymond Mancusi-Ungaro, Upper Montclair, N. J.; Bernard Margolis, Philadelphia; Enrique Milan, Santurce, P. R.; Bertram Wilson Miller, Flushing, N. Y.; William Clayton Morgan, Salisbury, Md.; Mary Lois Murphy, Camden, N. J.; Sidney S. Narrett, Passaic, N. J.; Janice Tulchin Nightingale, New York; Donald E. Nitchman, Scotia, N. Y.; Herbert Hart Pomeranch, Flushing, N. Y.; Milton Prystowsky, Baltimore; Martin Francis Randolph, Danbury, Conn.; Frederick C. Robbins, Boston; Dudley Albert Roberts, Westfield, N. J.; Raymond Saigh, Teaneck, N. J.; Milton Schneider, Bayside, N. Y.; Ralph Schwartz, New York; Allen David Shapiro, Newburgh, N. Y.; John Howland Shelley, Howard Beach, N. Y.; Bernard J. Shuman, Atlantic City, N. J.; Hyman Soifer, Forest Hills, N. Y.; William Frederick Stengel, Baltimore; David Stiles, Irvington, N. Y.; Veronica Elizabeth B. Tisza, Cambridge, Mass.; Edward Paez Wallace, Greenfield, Mass.; Richard Storer Ward, New York; Jerome Leonard Weinstock, Philadelphia; Daniel Harris Welner, Buffalo; Kathleen Kirk Wendell, Pottstown.

PERSONAL

Appointment for Dr. Byron K. Rust.—Dr. Byron K. Rust, Indianapolis, has been made a member of the National Medical Advisory Board of the American Legion.

Appointment for Dr. Ji-toong Ling.—Dr. Ji-toong Ling, Norfolk, Va., has been awarded the Fellowship in Pediatric Roentgenology in the Children's Hospital of Cincinnati. He began his studies July 1, 1951.

New Society Presidents.—Dr. Hugh McCulloch, Chicago, was elected President of the American Pediatric Society at the meeting in May in Atlantic City. Dr. Eugene T. McEnery, Chicago, is President-Elect of the Chicago Medical Society. Dr. Roger L. J. Kennedy, Rochester, Minn., has been elected President of the Minnesota State Medical Society.

ANNOUNCEMENTS

Pediatric Postgraduate Endocrinology Course.—A pediatric postgraduate course in endocrinology will be given at the Burnham Memorial Hospital for Children, Massachusetts General Hospital, Boston, under the direction of Dr. Nathan B. Talbot and associates, Oct. 1 through Oct. 6, 1951. Further details may be secured by writing Courses for Graduates, Harvard Medical School, 25 Shattuck Street, Boston.

Coming Examinations to be Held by the American Board of Pediatrics, Inc.—The American Board of Pediatrics will hold oral examinations on Oct. 26, 27, and 28, 1951, in Buffalo.

Book Reviews

Life Among the Doctors. By Paul de Kruif. Price, $4.75. Pp. 470, with no illustrations. Harcourt, Brace & Co., 383 Madison Ave., New York 17, 1949.

The author of this book is master of a unique type of journalese, picturesque, bawdy and entertaining even to those readers in whom its style arouses distrust. It is a writing technic that combines overemphasis with understatement, suppression balanced against exaggeration.

However, no matter how much one may question his judgment, his justice or his verity or may distrust his conclusions, the author's writing holds the reader's attention and forces him to think about many aspects of medicine that need to be thought about.

Socrates took pride in being the "gadfly" of Athens. Apparently de Kruif gets his greatest satisfactions from stinging, justly or unjustly, the leadership of "organized medicine." What a kick he gets out of it when his puncture technic arouses the pained remonstrances of his victims. Socrates, however, was no hero worshiper, as Paul de Kruif proudly announces himself to be. Wild and woolly, he rides herd on the medical "mavericks," as he calls his heroes, all of them represented as more or less rebels against conservatism in medicine and protestants against the present leadership of "organized medicine." He parades his "mavericks" with Wild West whoops and jingle of spurs and tries his best to brand these heretofore unbranded ones with the R.D. of Reader's Digest approval. And he has many picturesque cuss words for those "big boys," "big committee men" of the American Medical Association and "big time operators" (B.C.M.'s and B.T.O.'s, as he refers to them), of the various opulent foundations, who did not see his heroes first and who failed to evaluate them as he does.

Of the author's "mavericks," one is left nameless for "fear of reprisals from the leaders of organized medicine," though few informed readers can be in doubt of the subject's identity. One of them is dead—the late Cyrus Young, pioneer in State Public Health activities. Besides these, there are listed the far from dead Tom Spies, the very much alive Herman Bundesen and the vigorous investigators Al Colburn, Leo Lowe, O. C. Wenger, Herman Kabat, Sidney Garfield and Herman Raffsky, all of them pictured as battling fearful odds unceasingly deployed against them by an antisocial "leadership of organized medicine." All of them are represented as engaged in one phase or another of social medicine and very interestingly represented. The growing importance of social medicine in an increasingly proletarian economy is not to be denied by even the most conservative medical man, no matter how much he may dislike the group approach. After all, is not Rudolph Virchow justly one of the profession's inspirations, and was he not also the statesman who fathered social medicine?

Any doctor who can restrain his resentment and who has the patience needed to discount the author's exaggerations will learn a lot that he will never come by in medical schools, medical meetings or current medical literature. Doctors will do well to read the book because it will be widely read and fully accepted by many outside the profession. Therefore, physicians should know its contents that they may be able intelligently to discuss with patients its errors and its truths.

Then, too, it is well for physicians to have brought home to them some of the grouches and grievances that the public holds against our profession. Unjust and exaggerated as these frequently are, certainly as they are told here, the reader will have to disentangle them from the author's purple prose. Counterirritation can provide salutary therapeusis, especially for those temperaments that our forefathers were wont to describe as phlegmatic.

There is, however, more, much more, to the book than this. Scattered throughout its pages are many fine descriptions of clinical, research and social situations reasonably stated in vivid prose; for de Kruif, when he will, can be as simple and as effective as anyone writing today. Particularly striking is the biographical miniature of Franklin Roosevelt; penetrating and vivid is the character analysis that emanates from the writer's account of a conference held at the White House, where he went confident that he could induce the "great humanitarian" president to provide funds for a nationwide attack on all preventable disease. His mission was a failure; but his account of the visit is a notable success.

De Kruif's ability to make concise, competent, clinical descriptions is apparent in many passages of the book; for instance, many a clinician might envy the verbal economy and accuracy of this description of multiple sclerosis.

"Its diagnosis is the prediction of life on a trembling, more and more, feeble downgrade to helplessness. . . . At its onset, it may hit devastatingly, or, again, it may seem of no account because its first signs and symptoms are transient. For a few hours or days, the victim may see double or have blurred vision or blind spots before the eyes; knees may tremble, balance and sense of direction may be lost in walking. . . . The legs may feel weak and heavy, fingers may feel numb and tingle, incontinence of bladder and bowels is frequent. Many sufferers experience fits of uncontrolled crying. They [the attacks] may vanish as suddenly as they come and are often misdiagnosed as hysterias. . . . Rarely, these sinister signals of doom never do return and only the minutest examination by a nerve specialist could detect that the patient had had Multiple Sclerosis. Usually, the attacks return with greater violence. . . . The payoff in about 80 per cent of the cases is spastic paraplegia, . . . and often, paralysis of arms and trunk muscles. . . . Recovery to any marked degree has been uncommon."

On pages 95 and 96 is to be found a little homily on character assassination. It is a classic in seven short paragraphs. The following is part of the third of these.

"And what is sad to see in humanity is the number of people who will doubt a man in whom they formerly had faith. Such doubts may arise from the merest rumors, the most flimsy hearsay, and the former friend, hearing these rumors, often begins to believe them, without lifting a finger to prove them right or wrong."

It is certainly amazing to find that a man who can write so highmindedly can also descend to some of the very attitudes that he so vigorously reprehends. As an illustration, in a bibliographic note, page 460, chapter 12, there appears this statement:

"Those helping us on this chapter ask to remain anonymous for fear of medical molestation."

All in all, this is a book that every physician should read and ponder.

From the Hills: An Autobiography of a Pediatrician. By John Zahorsky, M.D. Price, $4.00. Pp. 388, no illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 2, 1949.

Zahorsky, Zahorski, Zagorza—from whence stems the author's name—means "from the hills." So, our beloved "John from the hills" returns to the Ozark highlands of his childhood at Steelville, Mo., after 52 years of pediatric practice in St. Louis. Born in Hungary in 1871, brought to America as an infant, graduated from the Missouri Medical College in 1895, John Zahorsky at the peak of his career reputedly had one of the largest pediatric practices in the United States.

The World's Fair in St. Louis with its exhibit of incubator babies set the stage for an epidemic of diarrhea in the summer of 1904. The assignment of young Zahorsky to take charge prompted him to limit his practice to pediatrics. At that time, the pediatrician "was judged chiefly by his skill in feeding babies," and when Dr. Rotch of Harvard expounded his method of percentage feeding, "we pediatricians had something to support our view that we were specialists."

The author began his medical career in a day when board, lodging and office rent were usually wholly dependent on the earnings from a slowly developing practice. His recital of his early experience in establishing a practice in a period of national economic stringency, making calls on the street car, weathering the financial depression of the early 1930's and conserving with difficulty the earnings of a lifetime make interesting reading for the present generation.

His failure to secure an internship in the City Hospital after passing the examinations undoubtedly influenced his professional life. It served to keep him busy making calls at the homes of his patients—calls that eventually amounted to 40 a day, every day in the week. Doctor Zahorsky's teaching career extended over a period of 40 years, and from 1912 until his retirement in 1948, he was Professor of Pediatrics at St. Louis University School of Medicine.

As editor of the *St. Louis Courier of Medicine* in 1903, he developed into a prolific writer and achieved a wide reputation as a clinician. His original observations on roseola infantum and acrodynia are briefly mentioned. His protests against abandoning the cradle, assembling newborn children in a hospital room away from their mothers, the lagging interest in breast feeding and the performance of promiscuous tonsillectomies were not popular at the time.

John Zahorsky was never a conformist. He was a trail blazer, and his writing and teaching were characterized by a stubborn sifting of the wheat from the chaff in the voluminous literature over the past half century on the ills of childhood. Tragedy entered his life when his grandson, Jack, for whom he planned a career in pediatrics, met sudden death in a boyhood prank in the school yard. His wife, Beth, died in 1947 from cancer. Her illness over a period of eighteen months forced him to retire "slowly and gracefully" from active practice.

Now living the scenes of 78 years over again, he has put some of these in writing at urging of his children. His medical friends, former patients and especially the 3,000 former students of Dr. Zahorsky will enjoy this book and will better appreciate the contribution to the medical scene made by this pioneer in American pediatrics.

Mongolism: Peristatic Amentia. By M. Engler, M.D. Price, $4.50. Pp. 215, with 12 figures, 24 tables and 28 plates. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1949.

In this monograph the author presents a concise and comprehensive review of the literature, including historical data, statistical material as to the distribution and frequency of the condition and a wealth of descriptive detail concerning the various physical characteristics and pathological findings associated with mongolism. Such aspects of the problem as prognosis and possibilities for treatment and training of children so affected are also discussed. In the closing chapter, which is concerned with etiology, past and present day theories are reviewed. Evidence is presented to disprove many of them, e. g., heredity, consanguinity, specific maternal disease and endocrine dysfunction; the idea that the condition is caused by noxious influences on the uterine mucosa, interfering with blood supply and proper nutrition of the developing embryo, is supported. The author apparently feels very strongly that this is the one and only causative factor, whether as the result of exhausting maternal disease, poisonous effects of drugs, sexual immaturity of very young mothers, extensive scarring and damage from repeated pregnancies or curettage or other factors as yet unknown which may affect the site of implantation. These views seem a bit dogmatic, in light of what little factual information we actually have at present, even though this theory is not entirely untenable and certainly worthy of further investigation.

Throughout this work, the term "mongolism" is used to avoid confusion, but with appropriate explanations; a plea is made for substituting the term "peristatic amentia," by which is "understood the total of all the harmful factors acting on the ovary and uterus" as well as the mental retardation of affected persons. Although most of us are aware of the need for a new name, and the one suggested by the author may eventually prove to be acceptable, it would seem wiser to defer this choice until such a time as we have learned the true nature of the condition, in order to arrive at the most accurate all-inclusive descriptive term possible.

With its extensive bibliography and many helpful diagrams, photographs and charts, this monograph should serve as an excellent reference work for anyone interested in this condition, and it should also be considered a commendable work if its original purpose—that of stimulating the interest of others in further elucidation of this abnormality—can be fulfilled.

Miocarditis parasito carenciales. By Carlos Gil Yepez, M.D. Price, not given. Pp. 309, with 91 illustrations. Tipografia Vargas, S. A., Caracas, Venezuela, 1950.

In this monograph, written in Spanish, the author states the belief that many instances of myocarditis are etiologically at least aggravated by a vitamin deficiency that is brought on by parasites such as Schistosoma (bilharziasis). However, any parasite that causes any damage to the liver may interfere with absorption and synthesis of vitamins.

This thesis is discussed at length, and many examples are given. There are 69 roentgenograms of pathological cardiac conditions, 10 pathological microscopic sections and 6 electrocardiograms included. A good bibliography of material in all languages on vitamin deficiency is included.

Epidemics in Schools: An Analysis of the Data Collected During the Years 1935 to 1939. By E. A. Cheeseman. Price, 3 shillings. Pp. 96, with 60 tables. His Majesty's Stationery Office, York House, Kingsway, London, W.C. 2, England, 1950.

This monograph is a statistical study of the incidence of infections in school children in Britain. It represents a five year period. The conclusions bear out impressions with which most are familiar regarding the incidence of infections of the upper respiratory tract in school children. For example, the late winter and early spring were times of highest incidence. The studies were carried on in boarding schools, where the observation could be closer than in day schools.

This report should be valuable to any one interested in the use of statistical methods. The tables and graphs are numerous and illustrate clearly the information discussed.

The Merck Manual of Diagnosis and Treatment. Price, $5.00. Pp. 1592. Merck & Company, Inc., Rahway, N. J., 1950.

This is the eighth edition of a familiar publication. In its present edition it has been completely rewritten and is a completely new handbook rather than a revision. The subject matter is exceedingly comprehensive in scope and apparently thoroughly up to date. Three hundred and thirty-eight chapters are included in the section on diagnosis and treatment, as against 256 in the previous edition. The manual presents an amazing mass of information in convenient form. As a quick and handy reference it can be highly recommended.

In Defense of Mothers: How to Bring Up Children in Spite of the More Zealous Psychologists. Leo Kanner, M.D. Price, $3.00. Pp. 178, with 17 illustrations. Second printing. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1950.

The second printing of this book indicates its popularity, clarity and humor. The author stresses the natural instincts and common sense in rearing children. The chapters on behavior problems are particularly valuable.

The reviewer believes that the author has unnecessarily satirically attacked the freudian concept of psychiatry without giving credit to the great advances made under the guidance of Dr. Freud's theories.

This book should be read by all people interested in the care of children.

Current Therapy 1950. Edited by H. F. Conn. Price, $10.00. Pp. 736. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5, 1950.

This new edition is extensively revised. Sixteen new subjects are included, while 40 new contributors have written articles for the present volume. The publishers state that a new treatment has been developed in the past year for one of every three diseases. This would certainly demonstrate the need for frequent revisions. The book appears to be complete and is easily used. For purposes of therapy it is a very valuable reference and one which should find a ready acceptance.

Currents in Nutrition: Proceedings of the Nutrition Symposium Held at the University of Illinois, College of Medicine, Nov. 19, 1949. By Bertha Burke, William J. Darby, L. Emmett Holt Jr., M. K. Horwitt, Ancel Keys, Carl V. Moore, James M. Strang and R. W. Vilter. Nutrition Monograph Series, Number 2. Price, $1.00. Pp. 128. National Vitamin Foundation, Inc., 153 Broadway, New York 17, 1950.

This monograph is the verbatim report of papers given by the various authors. Discussions of the papers are included, but no bibliographies. Eight subjects are included: studies on thiamin and riboflavin requirements in man, studies on vitamin B requirements of infants, pyridoxine deficiency syndrome in man, maternal nutrition and other factors of importance to the fetus and mother, newer hemopoietic vitamins, iron metabolism and hypochromic anemia, evaluation of obesity and its significance and some problems of obesity. In general, the papers serve as an indication of present trends in nutritional thinking.

Acido para Aminosalicilico y su empleo en tuberculosis infantil. By A. Allue Horna. Reprint from Rev. espafi. pediat. **6**:89 (Jan.-Feb.) 1950. No charge. Pp. 20, with 8 graphs and 5 figures. Independencia 25, Zaragoza, Spain.

The drug was used in nine instances of infantile tuberculosis, including lung infections, adenopathy and meningitis. The results were equal to those obtained with streptomycin, with the added advantages that it can be administered by mouth and there are apparently no side effects that may be injurious to the child.

Food for Little People. By Hazel Kepler and Elizabeth Hesser. Price, $3.75. Pp. 375. Funk & Wagnalls Company, 153 E. 24th St., New York 10, 1950.

"Food for Little People" is designed to assist parents in the feeding of their children through that troublesome preschool period when children are notoriously indifferent eaters. Scientific facts about nutritional needs of this age period are interwoven with many helpful psychological suggestions covering methods of making meal time a pleasant occasion rather than a nightmare. Information about the essential foods and the many ways in which they may be attractively prepared provide parents with a guide which will help them over many a rough spot. Physicians can recommend this book to the parents of preschool children with assurance.

Directory of Pediatric Societies *

INTERNATIONAL

International Pediatric Association

President: Dr. Felix Hurtado, Habana, Cuba.
Secretary: Dr. Guido Fanconi, Kinderklinik, Zurich, Switzerland.
Next Meeting (Seventh International Congress of Pediatrics): Habana, Cuba, 1953.

International Congress for the Protection of Infancy

Secretary: Prof. G. B. Allaria, Corso Bramante 29, Torino 120, Italy.

Pan American Congress of Pediatrics

President: Dr. Felix Hurtado, Habana, Cuba.

International Union for Child Welfare

President: Mrs. Gordon Morier.
Secretary: Dr. Georges Thélin, 43 Quay Wilson, Geneva, Switzerland.

FOREIGN

Argentine Pediatric Society of Buenos Aires

President: Dr. Martin Ramón Arana, 1809 Rodriquez Peña, Buenos Aires.
General Secretary: Dr. Alfredo Larguia, Cerrito 1179, Buenos Aires.

Associação Paulista de Medicina, Secçaõ de Pediatrias

President: Dr. Armando de Arruda Sampaio.
First Secretary: Dr. Luis Fontoura y Lauro Machado Oliveira, Caixa Postal 2103, São Paulo, Brazil.
Second Secretary: Dr. Luiz Augusto Monteiro Toledo, Av. Brigadeiro Luiz Antonio 393, 1° Andar, São Paulo, Brazil.
Time: Twelfth of every month, 8:30 p. m.

Asociación Pediatrica de Guatemala

President: Dr. Carlos Manuel Monzon, Plazuela Santuario de Guadalupe, Guadalupe.
Secretary: Dr. Maria Isabel Escobar, Casa del Niño no. 1, Guadalupe.

Australian Paediatric Association

President: Dr. H. Douglas Stephens.
Secretary-Treasurer: Prof. Lorimer Dods, The Institute of Child Health, Royal Alexandra Hospital for Children, Camperdown, N. S. W., Australia.
Time: One meeting a year.

British Paediatric Society

President: Dr. A. G. Maitland-Jones.
Secretary: Dr. Alan Moncrieff, Institute of Child Health, Hospital for Sick Children, Great Ormond St., London W. C. 1.
Place: Windermere.

Bulgarian Pediatric Society

President: Dr. L. Ratchew, University Children's Hospital, Wassil Kolarow 46, Sofia.

Chinese Pediatric Society

President: Dr. Fu-tang Chu, Peking Children's Hospital, Peking, China.
Secretary: Dr. Hua-kang Chow, Peking Union Medical College, Peking, China.
Time: Concurrent with the annual conference of the Chinese Medical Association.

Czechoslovak Pediatric Society

Chairman: Prof. Dr. Jiri Brdlík, 2 Sokolská, Prague II.

Danish Pediatric Society

Chairman: Prof. Preben Plum.
Secretary: Dr. Elin Fog, Søllingsvey 17, Charlottenlund, Denmark.

* Secretaries of societies are requested to furnish the information necessary to make this list complete and to keep it up to date.

German Pediatric Society

President: Dr. H. Kleinschmidt.
Secretary: Dr. F. Goebel, 5 Moorenstrasse, Düsseldorf, Germany (British Zone).

Hellenic Society of Pediatrics

President: Dr. C. Saroglou, Patission St. 74, Athens, Greece.
Secretary-General: Dr. S. Charocopos, Alexandras Ave. 1, Athens, Greece.

Indian Pediatric Society

President: Dr. K. C. Chaudhuri, Dept. of Pediatrics, Medical College, Calcutta.
Secretary: Dr. S. P. Bhattacharjee, Dept. of Pediatrics, Medical College, Calcutta.
Place: Office of the Indian Medical Association, 67 Dharamtala St., Calcutta 13.
Time: Every second and fourth Wednesday of each month.

Medical Association of Israel, National Pediatric Society

President: Prof. L. F. Meyer, 29 Idelson St., Tel-Aviv, Israel.
Secretary: Dr. W. Hirsch, Hadassah Municipal Hospital, Tel-Aviv, Israel.

Nederlandsche Vereeninging voor Kindergeneeskunde

President: Dr. G. J. Huët, 39 Brediusweg, Bussum.
Secretary: Dr. H. Reerkink, % Sophia Kinderziekenhuis, 160 Gordelweg, Rotterdam.
Place: Children's Hospital or Pediatric Clinic. Time: Three times a year.

Palestine Jewish Medical Association, Section of Physicians of Children's Diseases

See Medical Association of Israel, National Pediatric Society.

Pediatric Society of New Zealand

President: Dr. Lawrence Ludbrook, The Lister Building, Victoria Street East, Auckland.

Royal Society of Medicine, Section for the Study of Diseases in Children

President: Dr. Kenneth Tallerman.
Secretary: Dr. I. M. Anderson; Dr. Ronald MacKeith.
Place: 1 Wimpole St., London W. 1. Time: Fourth Friday of each month, 4:15 p. m.

Schweizerische Gesellschaft für Pädiatrie

President: Prof. Dr. A. Hottinger, Petersplatz 12, Basel.
Secretary: Dr. F. Hauser, Kinderspital, Basel.

Sociedad Boliviana de Pediatria

President: Dr. Carlos Ferrufino, Casilla 272, La Paz, Bolivia.
Secretary: Dr. Cecilio Abela D., Casilla 272, La Paz, Bolivia.
Place: S. C. I. S. P. Bldg. Time: Every Thursday.

Sociedad Chihuahuense de Pediatria

President: Dr. Carlos Villamar Talledo.
Vice President: Dr. H. Uranga.
Secretary: Dr. Reynaldo Ramos Varela.
Treasurer: Dr. David Russek.
Place: Children's Hospital, Matamoros St., Chihuahua, Chihuahua, Mexico.

Sociedad Chilena de Pediatria

Secretary-General: Dr. Oscar Undurraga A., Merced 565, Santiago, Chile.
Place: Medical Society, Merced 565, Santiago, Chile. Time: 7 p. m., every Thursday.

Sociedad Cubana de Pediatria

President: Dr. Miguel Fabres Izaga.
President: Prof. Agustin Castellanos.
Secretary: Dr. Carlos Hernandez Miyares, Hospital Nuestra Señora de las Mercedes L y 21. Apartado 2430, Habana.
Place: Cátedra de Clinica Infantil, Hospital Nuestra Señora de las Mercedes y Hospital Municipal de Infancia, Habana. Time: 9 p. m., last Wednesday of every month.

SOCIEDAD DOMINICANA DE PEDIATRIA

President: Dr. Jaime Jorge, Jose Joaquin Perez, no. 25, Ciudad Trujillo, R.D.
Secretary-Treasurer: Dr. Alberto Peguero, V., Ave. Bolivar 113, P. O. Box 464, Ciudad Trujillo, R.D.
Place: Children's Ramfis Hospital. Time: 8 p. m., last Friday of every month.

SOCIEDAD ECUATORIANA DE PEDIATRIA

President: Dr. Alfredo Ceballos Carrión.
Secretary: Dr. Rafael Compte Andrade, P. O. Box 3480, Guayaquil.
Place: Hospital Central. Time: 11:30 a. m., every Friday.

SOCIEDAD MEXICANA DE PEDIATRIA

President: Dr. Gabriel Araujo Valdivia.
Vice-President: Dr. Ramón Pous Roca.
Secretary: Dr. Luis Torregrosa F.
Corresponding Secretary: Dr. Antonio Prado Vertiz.
Treasurer: Dr. Fernando López Clares.
Place: Hospital Infantil. Time: Last Thursday of every month.

SOCIEDAD DE PEDIATRÍA DE CONCEPCIÓN (CHILE)

President: Dr. Raúl Ortega A., Hospital Clínico Regional, Concepción.
Secretary: Dr. Fidel Urrutia, Hospital Clínico Regional, Concepción.
Place: Hospital Clínico Regional, Concepción. Time: 7:30 p. m., second Tuesday of every month from April to December, inclusive.

SOCIEDAD DE PEDIATRÍA DE CÓRDOBA

President: Dr. Juan Francisco Herrera, Córdoba, Argentina.
Secretary: Dr. Albino F. Dottori, Dean Fumes 2000, Esq. Ocaña (N.), Córdoba, Argentina.
Place: Comite pro Defenso del Niño, Dean Fumes 2000, Córdoba, Argentina.
Time: Once a month.

SOCIEDAD DE PEDIATRIA DEL LITORAL

President: Dr. Jose E. Celoria, Hospital Centenario, Rosario, Argentina.
Secretary: Dr. Gloria Lovell, Hospital Centenario, Rosario, Argentina.

SOCIEDAD DE PEDIATRÍA DE SANTIAGO DE CUBA

President: Dr. Antonio Béguez César, Sagarra 107, Santiago de Cuba.
Secretary: Dra. Susana Texdó Vaillant, Padre Pico 57, Santiago de Cuba.
Place: Colegio Médico. Time: Last Tuesday of every month.

SOCIEDADE PORTUGUÊSA DE PEDIATRIA

President: Prof. Castro Freire.
Secretary-Generale: Dr. Cordeiro Ferreira, Hospital de D. Estefania, Lisbon, Portugal.

SOCIEDAD URUGUAYA DE PEDIATRIA

President: Dr. Conrado Pelfort.
Secretary: Dr. José M. Portillo.
Place: Club Medico del Uruguay, Avenida Agraciada 1464 (Piso 13), Montevideo.

SOCIEDAD VENEZOLANA DE PUERICULTURA Y PEDIATRIA

President: Lya Imber Coronil.
Secretary: Dr. Guillermo Tovar, P. O. Box 5, Caracas.
Place: Hospital Municipal de Niños, Caracas. Time: Once a month.

SOCIEDAD YUCATECA DE PEDIATRIA

President: Dr. José Lavalle, Yucatan, Mexico.
Secretary: Dr. Francisco Solís, Yucatan, Mexico.
Place: Hospital del Niño, Yucatan, Mexico.

SOCIÉTÉ DE PÉDIATRIE DE MONTRÉAL

President: Dr. Paul Letondal, 370 E. Roy St., Montreal, Quebec, Canada.
Secretary-Treasurer: Dr. Edmond Baril, 301 Carré Saint-Louis, App. 1, Montreal, Quebec, Canada.
Time: First and Third Thursday of each month.

SOCIÉTÉ DE PÉDIATRIE DE PARIS

President: Dr. G. Heuyer, 1 Ave. Emile Deschanel, Paris 7e, France.
Secretary: Dr. Maurice Lamy, 94 rue de Varenne, Paris 7e, France.
Place: Hôpital des Enfants Maladies, 149 Rue de Sèvres. Time: 4: 30 p. m., third Thursday of each month.

SOCIÉTÉ DE PÉDIATRIE DE QUÉBEC

President: Dr. Roland Thibaudeau, 203 des Erables, Quebec, Que., Canada.
Secretary-Treasurer: Dr. Euclide Déchêne, 312 du Roi, Quebec, Que., Canada.

SOCIETÉ POLONAISE DE PÉDIATRIE

President: Dr. Jan Bogdanowicz, Dzialdowska 1, Warsaw.
Secretary: Dr. Zofia Leimbach, Mieroslawskiego 9 m.6, Warsaw.

SOUTH AFRICAN PAEDIATRIC ASSOCIATION

Chairman: Dr. Basil Melle, 89 Lister Bldg., 195 Jeppe St., Johannesburg, South Africa.
Secretary-Treasurer: Dr. Seymour Heymann, 17 Lister Bldg., 195 Jeppe St., Johannesburg. South Africa.

SWEDISH ASSOCIATION OF PEDIATRICS

President: Prof. Sture Siwe, Lund.
Secretary: Dr. K. A. Melin, Färjestadsvägen 16, Bromma.

SWEDISH MEDICAL SOCIETY, SECTION FOR PEDIATRICS AND SCHOOL HYGIENE

President: Docent H. Magnusson, Sachs' Hospital for Children, Stockholm.
Secretary: Dr. M. d'Avignon, Norrtulls Sjukhus, Stockholm.
Place: Swedish Medical Society, Klara Östra Kyrkogata 10, Stockholm and Pediatric Clinic Upsala. Time: Second Friday of each month (except summer).

VIENNA PEDIATRIC SOCIETY

President: Prof. Dr. A. Solé, Karolinen-Kinderspital, Sobieskigasse 31, Vienna 9.
Secretary: Doz. Dr. Asperger, Universitäts-Kinderklinik, Lazarettgasse 14, Vienna 9.

NATIONAL

AMERICAN MEDICAL ASSOCIATION, SCIENTIFIC ASSEMBLY, SECTION ON PEDIATRICS

Chairman: Dr. Woodruff L. Crawford, 321 W. State St., Rockford, Ill.
Secretary: Dr. Margaret Mary Nicholson, 1801 Eye St. N. W., Washington, D. C.

AMERICAN ACADEMY OF PEDIATRICS

President: Dr. Paul W. Beaven, 26 S. Goodman St., Rochester 7, New York.
Secretary: Dr. Clifford G. Grulee, 636 Church St., Evanston, Ill.
Annual Meeting: Place: Toronto, Canada. Time: Oct. 20-25, 1951.*

AMERICAN HOSPITAL ASSOCIATION, MASSACHUSETTS HOSPITAL ASSOCIATION

Chairman: Dr. Frank Wing, Boston.
Secretary: Dr. W. Franklin Wood, McLean Hospital, Waverly 79, Mass.

AMERICAN PEDIATRIC SOCIETY

President: Dr. Valjean Cooke, 8700 Argyle Ave., St. Louis.
Secretary-Treasurer: Dr. Henry G. Poncher, 1819 W. Polk St., Chicago 12.

CANADIAN SOCIETY FOR THE STUDY OF DISEASES OF CHILDREN

President: Dr. P. E. Williams, 193 James St. S., Hamilton, Ontario.
Secretary-Treasurer: Dr. R. L. Denton, 1615 Cedar Ave., Montreal.

SOCIETY FOR PEDIATRIC RESEARCH

President: Dr. Henry H. Gordon, 4200 E. 9th Ave., Denver 7, Colo.
Secretary-Treasurer: Dr. Robert Ward, Bellevue Hospital, New York 16.
Place: French Lick, Ind. Time: 1950.

SECTIONAL

INTERMOUNTAIN PEDIATRIC SOCIETY

President: Dr. Spencer Snow, 75 S. Main St., Salt Lake City.
Secretary-Treasurer: Dr. Esther Gross, 202 E. South Temple St., Salt Lake City.
Place: Salt Lake City General Hospital. Time: First Thursday of each month, 8 p. m.

* The time and place of this meeting were incorrectly given in the January issue.

New England Pediatric Society

President: Dr. Henry E. Gallup.
Secretary-Treasurer: Dr. Harry Shwachman, 300 Longwood Ave., Boston.
Time: Four meetings a year.

North Pacific Pediatric Society

President: Dr. Gordon O. Matthews, 808 Medical-Dental Bldg., Vancouver, B. C.
Secretary-Treasurer: Dr. S. Gorham Babson, 1220 S. W. Taylor St., Portland, Oregon.

Northwestern Pediatric Society

President: Dr. J. Harry Murphy, 915 Medical Arts, Bldg., Omaha.
Secretary-Treasurer: Dr. Elizabeth Lowry, 301 Kenwood Parkway, Minneapolis.
Place: Minneapolis, St. Paul, Duluth and Rochester. Time: January, April, July and October.

Rocky Mountain Pediatric Society

President: Dr. Joseph Lyday, 227 16th St., Denver 2.
Secretary-Treasurer: Dr. Edwin T. Williams, 1850 Gilpin St., Denver 6.
Place: Children's Hospital of Denver or the Colorado General Hospital. Time: Monthly from October to June.

Southern Medical Association, Section of Pediatrics

Chairman: Dr. Carroll M. Pounders, 1200 N. Walker St., Oklahoma City.
Secretary: Dr. Samuel F. Ravenel, 371 N. Elm St., Greensboro, N. C.

Southwestern Pediatric Society

President: Chester I. Mead, 1930 Truxton Ave., Bakersfield, Calif.
Secretary: Dr. Clement H. Molony, 416 N. Bedford Dr., Beverly Hills, Calif.
Place: University Club of Los Angeles. Time: 6:30 p. m., second Wednesday in January, March, May, September and November.

STATE

Alabama Pediatric Society

President: Dr. W. A. Daniel Jr., 115 S. Union St., Montgomery 5, Ala.
Secretary-Treasurer: Dr. D. B. Monsky, 905 Norman Bridge Rd., Montgomery 6, Ala.

Arizona Pediatric Society

President: Dr. Carl A. Holmes, 1401 N. 7th Ave., Phoenix.
Secretary-Treasurer: Jacob M. Sobol, 607 Heard Bldg., Phoenix.
Place: Phoenix or Tucson. Time: On Call.

Arkansas State Pediatric Association

Chairman: Dr. C. B. Billingsley, 1425 N. 11th St., Fort Smith.
Secretary: Dr. R. E. Weddington, 1425 N. 11th St., Fort Smith.

California State Medical Society, Section on Pediatrics

Chairman: Dr. Alice Potter, 1418 Ninth Ave., San Francisco 22.
Secretary: Dr. Carl Erickson, 595 E. Colorado, Pasadena.

Florida State Pediatric Society

President: Dr. Edgar W. Stephens, 910 Harvey Bldg., West Palm Beach.
Secretary: Dr. Hugh A. Carithers, 2000 Park St., Jacksonville 4.
Place: Concurrent with state association convention and fall meeting.

Georgia Pediatric Society

President: Dr. Howard J. Morrison, 444 Drayton St., Savannah.
Secretary-Treasurer: Dr. J. Harry Lange, 490 Peachtree St. N. E., Atlanta.
Place: Atlanta. Time: At time of annual state meeting.

Hezekiah Beardsley Pediatric Club of Connecticut

President: Dr. H. L. F. Locke, 179 Allyn St., Hartford, Conn.
Secretary: Dr. L. W. Minor, 119 Main St., Middletown, Conn.

ILLINOIS STATE MEDICAL SOCIETY, SECTION ON PEDIATRICS

Chairman: Dr. Eugene T. McEnery, 4458 W. Madison St., Chicago 24.
Secretary: Dr. George L. Drennen, Jacksonville, Ill.

INDIANA STATE PEDIATRIC SOCIETY

President: Dr. K. T. Knode, 1105 E. Jefferson Bldg., South Bend.
Secretary-Treasurer: Dr. Matthew Winters, 621 Hume Mansur Bldg., Indianapolis.
Time: Two meetings a year.

IOWA PEDIATRIC SOCIETY

President: Dr. Charlotte Fisk, 1201 Equitable Bldg., Des Moines 9.
Secretary-Treasurer: Dr. James Dunn, Davenport Bank Bldg., Davenport.

LOUISIANA STATE PEDIATRIC SOCIETY

President: Dr. William C. Rivenbank, 1448 Louisiana Ave., New Orleans 15.
Secretary-Treasurer: Dr. Bertha Wexler, 3439 Prytania St., New Orleans 15.

MEDICAL SOCIETY OF THE STATE OF NEW YORK, PEDIATRIC SOCIETY

Chairman: Dr. Thurman B. Givan, 115 Remsen St., Brooklyn 2.
Secretary: Dr. Reginald A. Higgons, Port Chester.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA, PEDIATRIC SECTION

Chairman: Dr. Waldo E. Nelson, Temple University, Philadelphia 40.
Secretary: Dr. Carl C. Fischer, 100 W. Coulter St., Philadelphia 44.

MICHIGAN STATE MEDICAL SOCIETY, PEDIATRIC SECTION

Chairman: Dr. Robert J. Mason, 308 N. Woodward Ave., Birmingham, Michigan.
Secretary: Dr. Horace L. French, 301 Seymour Ave., Lansing, Michigan.

MISSISSIPPI STATE PEDIATRIC SOCIETY

President: Dr. Harvey F. Garrison Jr., 315 E. Capitol Place, Jackson.
Secretary: Dr. Guy Verner, 126 N. Congress St., Jackson.

MONTANA PEDIATRIC SOCIETY

President: Dr. Edward A. Hagmann, 208 N. Broadway, Billings, Montana.
Secretary: Dr. George W. Nelson, 2814 9th Ave. N., Billings, Montana.
Place: Decided at each meeting—Spring and Fall.

NEBRASKA PEDIATRIC SOCIETY

President: Dr. George E. Stafford, 823 Sharp Bldg., Lincoln, Neb.
Secretary-Treasurer: Dr. Donald C. Nilsson, 115 North 40 Street, Omaha, Neb.
Place: Children's Memorial Hospital. Time: Third Thursday of each month from October to June, inclusive. Dinner at 6 p. m.

NEW HAMPSHIRE PEDIATRIC SOCIETY

President: Dr. Edward L. Tuohy, Manchester.
Secretary-Treasurer: Dr. William D. Penhale, Concord.

NEW JERSEY MEDICAL SOCIETY, PEDIATRIC SECTION

Chairman: Dr. Israel J. Wolf, 231 E. 31st St., Paterson.
Secretary: Dr. N. T. Crane, 147 E. 7th St., Plainfield, N. J.

NEW MEXICO STATE PEDIATRIC SOCIETY

President: Dr. M. K. Wylder, 221 W. Central Ave., Albuquerque.
Secretary-Treasurer: Dr. Ly Werner, 221 W. Central Ave., Albuquerque.

NORTH CAROLINA PEDIATRIC SOCIETY

President: Dr. Jean Craven, 19 W. Third St., Lexington, N. C.
Secretary-Treasurer: Dr. Susan C. Dees, Duke Hospital, Durham, N. C.

NORTHERN CALIFORNIA PEDIATRIC SOCIETY

President: Dr. William C. Deamer, 3 Fifth Ave., San Francisco 18.
Secretary: Dr. A. L. Gleason, 1066 Longridge Rd., Oakland 10.
Place: San Francisco. Time: Second Thursday of February, April, September and November.

NORTH DAKOTA PEDIATRIC SOCIETY

President: Dr. L. G. Pray, Fargo Clinic, Fargo, N. D.
Vice President: Dr. B. A. Mazur, Dakota Clinic, Fargo, N. D.
Secretary-Treasurer: Dr. William J. Ball, Northwest Clinic, Minot, N. D.
Place: Bismark, N. D. Time: May 21, 1951.

OKLAHOMA STATE PEDIATRIC SOCIETY

President: Dr. J. B. Snow, 625 N. W. 10th St., Oklahoma City.
Secretary: Dr. Bertha Levy, 1200 N. Walker St., Oklahoma City.
Place: With Oklahoma State Medical Association. Time: Annual Meeting.

PHILIPPINE PEDIATRIC SOCIETY

President: Dr. Alberto V. Tupas, Philippine General Hospital, Manila, Philippines.
Secretary: Dr. Artemio P. Jongco, Philippine General Hospital, Manila, Philippines.
Place: Philippine General Hospital. Time: Every two months.

SOUTH CAROLINA PEDIATRIC SOCIETY

President: Dr. B. Owen Ravenel, 95 Rutledge Ave., Charleston 16.
Secretary-Treasurer: Dr. John R. Harvin, 206 N. Sumter St., Sumter.

TENNESSEE PEDIATRIC SOCIETY

President: Dr. W. O. Vaughan, 2103 Hayes St., Nashville 5.
Secretary-Treasurer: Dr. C. Barton Etter, 1678 Peach, Memphis 12.
Place: Chattanooga. Time: Second Monday in April.

TEXAS PEDIATRIC SOCIETY

President: Dr. Thomas D. McCrummen, 304 Capitol Nat'l Bank Bldg., Austin, Texas.
Secretary: Dr. M. C. Carlisle, 1410 Austin Ave., Waco, Texas.
Treasurer: Dr. Edith Bonnet, 228 Medical Arts Bldg., San Antonio, Texas.

VIRGINIA PEDIATRIC SOCIETY

President: Dr. E. Berkeley Neal.
Vice President: Dr. E. L. Kendig.
Secretary-Treasurer: Dr. W. A. Mitchell.
Executive Board: Dr. F. R. Hopkins and Dr. J. O. Rydeen.

WISCONSIN STATE MEDICAL SOCIETY, SECTION ON PEDIATRICS

President: Dr. K. J. Winters, 1411 Wauwatosa Ave., Milwaukee 13, Wis.
Secretary: Dr. Niels L. Low, 744 Main St., Racine, Wisconsin.

LOCAL

ACADEMY OF MEDICINE OF CLEVELAND, PEDIATRIC SECTION

Chairman: Dr. Charles H. York, 10465 Carnegie Ave., Cleveland 6.
Secretary: Dr. Earl E. Smith, 10640 Carnegie Ave., Cleveland 6.
Place: Allen Memorial Medical Library. Time: 8:15 p. m., October, December, February and April.

ACADEMY OF MEDICINE, TORONTO, SECTION OF PEDIATRICS

President: Dr. A. L. Chute, 170 St. George St., Toronto, Canada.
Secretary: Dr. John Fletcher, 262 St. Clair St. W., Toronto, Canada.
Place: Academy of Medicine. Time: 8:30 p. m., third Thursday of each month.

BALTIMORE CITY MEDICAL SOCIETY, PEDIATRIC SECTION

President: Dr. Wilson Grubb, 4 E. 33rd St., Baltimore 18.
Secretary: Dr. Gibson J. Wells, 3101 St. Paul St., Baltimore 18.

BRONX PEDIATRIC SOCIETY

President: Dr. Nathan M. Greenstein, 1488 Metropolitan Ave., New York.
Secretary: Dr. George Weiss, 790 Grand Concourse, New York 51.
Place: Morrisania City Hospital. Time: 8:30 p. m., second Wednesday of each month, except June, July, August and September.

BROOKLYN ACADEMY OF PEDIATRICS

President: Dr. Lewis A. Koch, 62 Pierrepont St., Brooklyn.
Secretary: Dr. Stanley S. Lamm, 20 Plaza St., Brooklyn 17.
Place: Granada Hotel. Time: 8:45 p. m., fourth Wednesday of February, March, April, October and November.

BUFFALO PEDIATRIC SOCIETY

President: Dr. Douglas P. Arnold, 159 Bidwell Parkway, Buffalo, N. Y.
Secretary: Dr. Richard A. Downey, 786 Forest Ave., Buffalo 9, N. Y.
Place: Children's Hospital, 219 Bryant St. Time: 8:30 p. m., first Monday of each month from September to June.

CENTRAL NEW YORK PEDIATRIC CLUB

President: Dr. T. Wood Clarke, 7 Cottage Place, Utica, N. Y.
Secretary-Treasurer: Dr. Fred W. Bush, 11 N. Goodman St., Rochester, N. Y.
Place: Various cities in New York. Time: Third Tuesday of April and October.

CENTRAL OHIO PEDIATRIC SOCIETY

President: Dr. E. H. Baxter, 327 E. State St., Columbus, Ohio.
Secretary-Treasurer: Dr. E. V. Turner, 2479 E. Main St., Columbus, Ohio.
Place: As Announced. Time: On call.

CHICAGO PEDIATRIC SOCIETY

President Dr. Alvah L. Newcomb, 723 Elm St., Winnetka, Ill.
Secretary: Dr. Alfred S. Traisman, 6349 N. Clark St., Chicago.
Place: Children's Memorial Hospital, 710 Fullerton Ave. Time: Third Tuesday of each month, October to May inclusive.

CINCINNATI PEDIATRIC SOCIETY

President: Dr. John H. Hunt, Kemper Lane Bldg., Cincinnati.
Secretary: Dr. William F. Hunting, 6048 Montgomery, Cincinnati.
Place: Children's Hospital, Elland Ave., Cincinnati. Time: On call.

DADE COUNTY PEDIATRIC SOCIETY

President: Dr. William W. McKibben, 641 N. Greenway Drive, Coral Gables, Fla.
Secretary-Treasurer: Dr. Wesley S. Nock, 671 N.E. 57th St., Miami 38, Fla.
Time and Place: Variable.

DALLAS PEDIATRIC SOCIETY

President: Dr. Fred Brooksaler, 4207 Lemmon Ave., Dallas.
Secretary-Treasurer: Dr. Charles L. Smith, 4207 Lemmon Ave., Dallas.
Place: Children's Hospital of Texas. Time: 6:30 p. m., the first Thursday of each month.

DETROIT PEDIATRIC SOCIETY

President: Dr. Wilfred D. H. Nolting, 16840 E. Warren, Detroit.
Secretary: Dr. Ruben Meyer, 938 Maccabees Bldg., Detroit.
Place: Variable. Time: Five times annually.

FORT WORTH PEDIATRIC SOCIETY

President: Dr. Frank Cohen, 712 S. Henderson, Fort Worth, Texas.
Secretary: Dr. H. H. Womack, 1422 Pennsylvania, Fort Worth, Texas.
Place: Welch and West Restaurant. Time: Third Friday of each month.

HONOLULU PEDIATRIC SOCIETY

President: Dr. Walter B. Herter, 305 Royal Hawaiian Ave., Honolulu.
Secretary-Treasurer: Dr. Teruo Yoshina, 1221 Victoria St., Honolulu 14.
Place: At doctors' homes in rotation. Third Thursday of each month, 6 p. m.

HOUSTON PEDIATRIC SOCIETY

President: Dr. Byron P. York, 3911 Montrose Blvd., Houston, Texas.
Secretary: Dr. David Schrum, 3207 Montrose Blvd., Houston, Texas.
Place: River Oaks Country Club. Time: 7:30 p. m., fourth Tuesday of each month.

KANSAS CITY (MISSOURI) PEDIATRIC SOCIETY

President: Dr. Harry M. Gilkey, 1624 Professional Bldg., Kansas City.
Secretary: Dr. Leland Speer, 1022 Hoel Parkway, Kansas City.
Place: Kansas City General Hospital. Time: On call.

KNOXVILLE-OAK RIDGE PEDIATRIC SOCIETY

President: Dr. Henry S. Christian, 205 Medical Arts Bldg., Knoxville, Tenn.
Secretary: Dr. John Eggleston, Oak Ridge Hospital, Oak Ridge, Tenn.

LONG BEACH PEDIATRICS SOCIETY

President: Dr. Lynn B. Vaughan, 302 Cherry Ave., Long Beach, Calif.
Secretary-Treasurer: Dr. Sam S. Woolington, 541 E. Broadway, Long Beach, Calif.

LOS ANGELES COUNTY MEDICAL ASSOCIATION, PEDIATRIC SECTION

President: Dr. Elena Boder, 1830½ Lucille Ave., Los Angeles 26.
Secretary-Treasurer: Dr. Robert Simonds, 267 S. Beverly Dr., Beverly Hills, Calif.
Place: Los Angeles County Medical Association Bldg., 1025 Wilshire Blvd. Time: Second Monday of February, April, June, October and December.

MEDICAL SOCIETY OF THE COUNTY OF KINGS AND THE ACADEMY OF MEDICINE OF BROOKLYN, PEDIATRIC SECTION

President: Dr. Jacob Rosenblum, 161 Rugby Rd., Brooklyn.
Secretary: Dr. Irving Weinstock, 350 Ocean Ave., Brooklyn.
Place: Kings County Medical Society. Time: 8:45 p. m., fourth Monday of April, October, November, January and March.

MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA, SECTION ON PEDIATRICS

President: Dr. John Washington, 2032 Belmont Rd. N. W., Washington, D. C.
Secretary-Treasurer: Dr. George Maksim, 1418 Good Hope Rd. S. E., Washington, D. C.
Place: Medical Society Bldg., 1718 M St. N. W. Time: Spring and fall.

MEMPHIS PEDIATRIC SOCIETY

President: Dr. C. Barton Etter, 1678 Peach, Memphis 12, Tenn.
Secretary-Treasurer: Dr. Jacob Danciger, 188 S. Bellevue Blvd., Memphis 4, Tenn.
Place: University Center, 4 S. Dunlap. Time: 7 p. m., second Tuesday of every month.

MILWAUKEE PEDIATRIC SOCIETY

President: Dr. A. L. Kastner, 1810 West Wisconsin Ave., Milwaukee 3, Wis.
Secretary-Treasurer: Dr. A. L. Babbitz, 606 West Wisconsin Ave., Milwaukee 3, Wis.
Place: City Club of Milwaukee. Time: Second Wednesday in February, April, June, October and December.

NASHVILLE PEDIATRIC SOCIETY

President: Dr. John M. Lee, Doctors Bldg., Nashville, Tenn.
Secretary: Dr. Dan S. Sanders Jr., 2103 Hayes St., Nashville, Tenn.
Time: Third Thursday of every month.

NEW YORK ACADEMY OF MEDICINE, SECTION ON PEDIATRICS

Chairman: Dr. Arthur F. Anderson, 122 E. 76th St., N. Y., N. Y.
Secretary: Dr. L. Emmett Holt Jr., 477 First Ave., N. Y., N. Y.
Place: New York Academy of Medicine, 2 E. 103rd St. Time: Second Thursday of each month from November to May, inclusive, 8:30 p. m.

OKLAHOMA CITY PEDIATRIC SOCIETY

President: Dr. Bertha M. Levy, 717 N. W. 22d St., Oklahoma City 3.
Secretary: Dr. C. M. Bielstein, 301 N. W. 12th St., Oklahoma City 3.
Place: Oklahoma Club. Time: On call.

PHILADELPHIA PEDIATRIC SOCIETY

President: Dr. T. F. McNair Scott, 1740 Bainbridge St., Philadelphia 46, Pa.
Secretary: Dr. F. H. Harvie, 133 S. 36th St., Philadelphia 4.
Place: College of Physicians, 19 S. 22nd St. Time: 8:30 p. m., second Tuesday from October to May, inclusive.

PITTSBURGH PEDIATRIC SOCIETY

President: Dr. J. A. Gilmartin, 3708-15th Ave., Pittsburgh.
Secretary-Treasurer: Dr. C. J. Stoecklein, Medical Arts Bldg., Pittsburgh 13.
Place: Municipal Hospital, Pittsburgh. Time: Second Friday in October, December, February and April.

Queens Pediatric Society

President: Dr. Meyerson Coe, 217-02 91st Ave., Queens Village, N. Y.
Secretary: Dr. Moe Goldstein, 111-32, 76th Ave., Forest Hills, N. Y.
Place: The Seminole Club, 112th St. and 70th Rd., Forest Hills, N. Y. Time: Second Tuesday in October, December, February, and April.

Richmond Pediatric Society

President: Dr. Thomas S. Chalkley, 421 W. Grace St., Richmond 20, Va.
Secretary-Treasurer: Dr. John Paul Jones, 810 W. Franklin St., Richmond 20, Va.
Place: Medical College Hospital. Time: 8 p. m., third Thursday of each month, except June, July and August.

Rochester Pediatric Society

President: Dr. Jerome Glaser, 85 San Gabriel Dr., Rochester 10, N. Y.
Secretary-Treasurer: Dr. Daniel B. Peeler, 1162 Lake Ave., Rochester 13, N. Y.
Place: Rochester Academy of Medicine or arrangement by program committee. Time: Third Friday of each month from October to May.

St. Louis Pediatric Society

President: Dr. Donald L. Thurston, 500 S. Kingshighway, St. Louis 10.
Secretary-Treasurer: Dr. Leo F. Gowan, 337 W. Lockwood Ave., St. Louis 19.
Place: Candlelight House. Time: Second Thursday of each month from October to May, inclusive, 6:30 p. m.

San Antonio Pediatric Society

President: Dr. Lucius Hill, 328 Medical Arts Bldg., San Antonio 5.
Secretary-Treasurer: Dr. Edith M. Bonnet, 228 Medical Arts Bldg., San Antonio 5.
Place: Bexar County Medical Library. Time: 7:30 p. m., first Tuesday of every month.

Santa Barbara Pediatric Society

President: Dr. Helen Hart, City Health Department, de la Guerra Plaza, Santa Barbara, Calif.
Vice President: Dr. Clarence Hills, 22B W. Micheltorena St., Santa Barbara, Calif.
Secretary-Treasurer: Dr. L. C. N. Wayland, 1235 Chapala St., Santa Barbara, Calif.
Meetings: Four times annually.

Seattle Pediatric Society

President: Dr. David M. Harris, Medical Arts Bldg., Seattle 1.
Secretary: Dr. William A. Jaquette Jr., 1305 Seneca, Seattle 1.
Place: College Club. Time: Fourth Friday of each month from September to June at 6:30 p. m.

University of Michigan Pediatric and Infectious Disease Society

President: Dr. Ernest H. Watson, University Hospital, Ann Arbor.
Secretary: Dr. Harry A. Towsley, 1313 E. Ann St., Ann Arbor.

Waco Pediatric Society

President: Dr. F. William Hoehn, 1422 Austin Ave., Waco, Texas.
Secretary: Dr. J. M. Garrett, 1408 Austin Ave., Waco, Texas.
Place: Providence Hospital, 1725 Colcord, Waco, Texas. Time: Third Thursday of each month.

Westchester County Medical Society, Pediatrics Section (New York)

President: Dr. Harry W. Kaessler, 147 Prospect Ave., Mount Vernon, N. Y.
Secretary-Treasurer: Dr. Elvira Ostlund, 64 Highland Rd., Rye, N. Y.
Place: The Roger Smith Hotel, White Plains, N. Y. Time: Fourth Thursday of every other month from September to June (dinner meetings).

Western Michigan Pediatric Society

President: Dr. Horace L. French, 301 Seymour Ave., Lansing, Michigan.
Secretary-Treasurer: Dr. John C. Montgomery, 1810 Wealthy St. S. E., Grand Rapids, Michigan.
Time: Meets on the first Wednesday in October, November, April and May of each year. Two meetings are held in Grand Rapids and two in other designated localities.

Wichita Pediatric Society

President: Dr. Walter L. Schafer, 401 N. Emporia St., Wichita 2, Kan.
Secretary: Dr. William F. McGuire, 401 N. Emporia St., Wichita 2, Kan.
Place: Variable: Time: First Thursday of each month.

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[1] *References on request*

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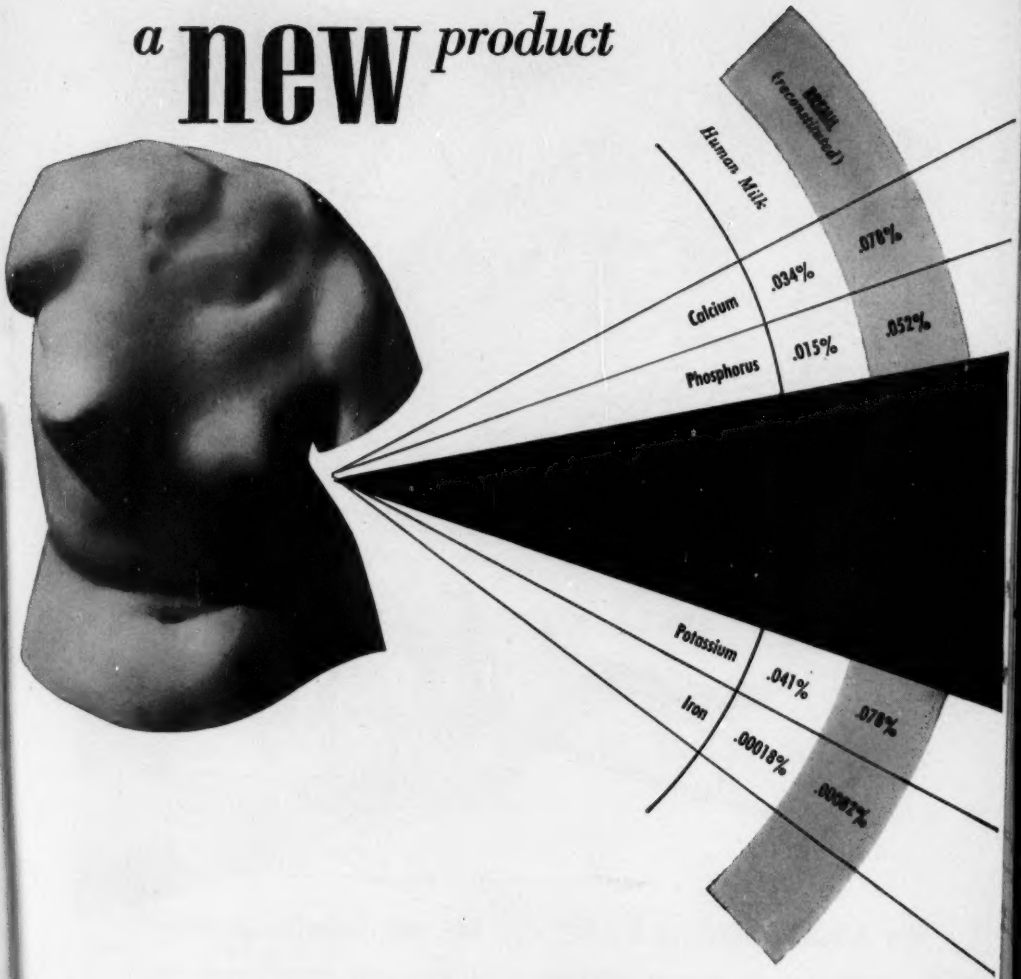

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1. Gardner, L. I.; MacLachlan, E. A.; Pick, W.; Terry, M. L., and Butler, A. M.: *Pediatrics* 5:223, 1950.
2. Nesbit, H. T.: *Texas State J. M.* 38:551, 1943.
3. May, C. D., et al.: *Bull. Univ. Minnesota Hospitals* 21:208, 1950.
4. Block, R. J.: *J. Am. Dietetic Assn.* 25:937, 1949.

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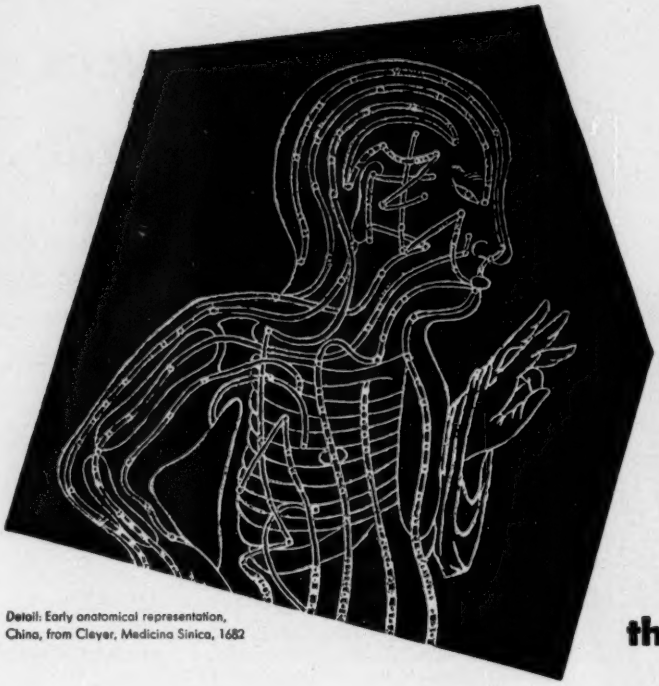

Detail: Early anatomical representation,
China, from Cleyer, Medicina Sinica, 1682

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(94 calories per 100 grams, or 26.6 calories per ounce)	

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Arginine	5.2
Histidine	5.7
Isoleucine	4.7
Leucine	7.0
Lysine	8.3
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Phenylalanine	3.5
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*Wetzel, N. C., W. C. Fargo, J. H. Smith and J. Helikson: Growth Failure in School Children as Associated with Vitamin B_{12} Deficiency—Response to Oral Therapy, Science, 110:651, 1949.

**McClure, F. J.: Fluorine in Foods, Public Health Reports, 64:1061, 1949.

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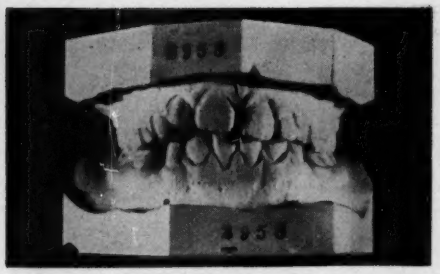

Nine year old boy had habit of holding index finger between teeth. Pressure caused teeth to protrude so that they do not meet.

Hand of above patient shows deformity caused by biting on finger. Note callous over joint and rotated tip of finger.

Untoward Results

OF PERSISTENT FINGER-SUCKING

A CASE OF MALOCCLUSION from a leading children's orthodontia clinic.

WHEN TREATMENT IS INDICATED . . .

--prescribe THUM (TRADE MARK)

WRITE FOR *FREE* SAMPLE

Contains capsicum 2.34% in a base of acetone nail polish and isopropyl alcohol.

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A. M. A. Archives of NEUROLOGY and PSYCHIATRY gives practical assistance to those readers who would keep well informed about the rapid progress in these fields. It presents original articles, clinical notes, special articles, society transactions and book reviews and book notices. Each issue includes a large number of brief digests from current medical literature which present significant findings of eminent neurologists and psychiatrists throughout the world. Well illustrated. Issued monthly. Averages about 2730 pages annually. Price, $12.00 a year. Canada, $12.40. Foreign, $13.50.

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The school programs are directed by an excellent staff of teachers in special education; a speech therapist, recreational and occupational therapists and a clinical psychologist.

A training center in special education for student teachers at the University of Michigan.

Complete reports sent to referring physicians at end of each term. Licensed by the Department of Public Instruction.

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Supplied	*2.0 Gm. with 10 cc. of diluent, and calibrated dropper.*

ANTIBIOTIC DIVISION **Pfizer** CHAS. PFIZER & CO., INC., *Brooklyn 6, N. Y.*

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Sound example of three-dimensional structure is LACTUM, Mead's evaporated whole milk–Dextri-Maltose® formula.

1. Sixteen per cent of Lactum's calories are supplied by *milk protein*—providing a generous amount for growth and development.
2. *Milk fat* contributes 34% of the calories.
3. *Carbohydrates* supply 50% of the calories—to provide generously for energy, permit proper metabolism of fat, and spare protein for tissue-building functions.

Authoritative pediatric recommendations support this caloric distribution. And cow's milk and Dextri-Maltose formulas with these approximate proportions have been successfully used in infant feeding for forty years.

Lactum's 4th dimension...
Time-saving convenience

Simply add water. A 1:1 dilution of Lactum provides 20 calories per fluid ounce.

FOR INFANTS WITH LOW FAT TOLERANCE

DALACTUM, an evaporated low fat milk and Dextri-Maltose formula offering the same convenience as Lactum.

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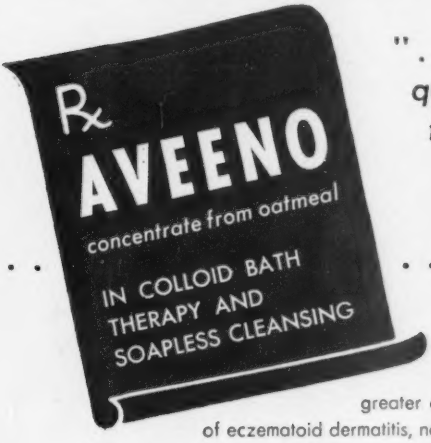
"COLLOID BATHS constitute an essential part of external treatment for many acute and chronic dermatoses..."*



"... These baths are frequently depended on for their soothing, cleansing ... and therapeutic qualities."*

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* "New type of Colloid Bath" by Kierland & Ede, Rochester, Minn., A.M.A. Archives of Dermatology & Syphilology, 63:4,502 April, 1951.

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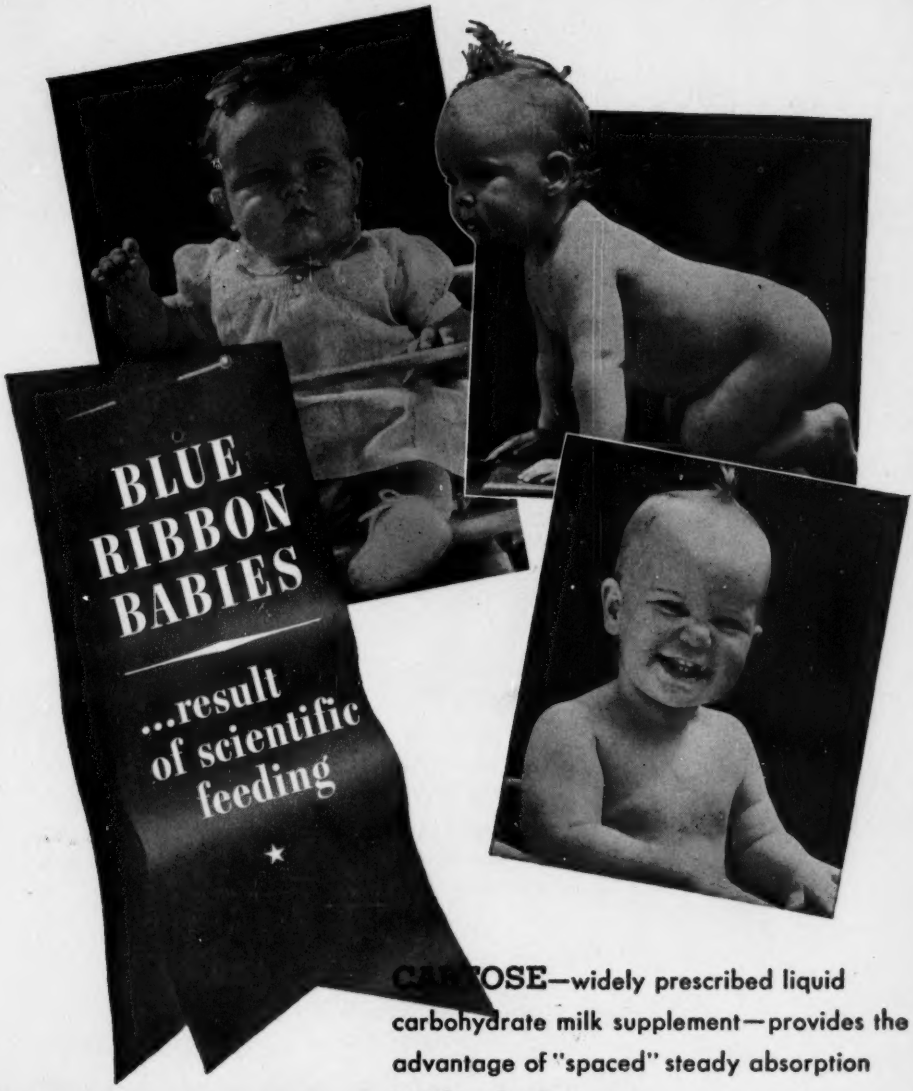

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